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# Fantasy & Science Fiction

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The Dark

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# Fantasy & Science Fiction

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## NOVELETS

VACUUM CLEANER	60	Ben Bova
BLUE ANGEL	110	Wennicke Eide

## SHORT STORIES

THE DARK	6	Karen Joy Fowler
WORDWORLD	33	Carolyn Ives Gilman
DEUCE	45	Henry Slesar
BETTER MORPHOSIS	54	Brian W. Aldiss
THE DAY THEY ALL CAME BACK	107	Avram Davidson
THE BLESSED/DAMNED THORNSTON EMERALD	140	Grania Davis

## DEPARTMENTS

BOOKS	24	Algis Budrys
BOOKS TO LOOK FOR	30	Orson Scott Card
SCIENCE: Royal Gamma	130	Isaac Asimov
INDEX TO VOLUME 80	159	

CARTOONS: HENRY MARTIN (23), FRANK HAUSER (129), JOSEPH FARRIS (162)  
COVER BY STEPHEN GERVAIS FOR "THE BLESSED/DAMNED THORNSTON EMERALD"

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# Editorial

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## EDWARD L. FERMAN

I HAVE A copy of the January 1966 issue of F&SF in front of me. It has stories by Robert F. Young, Ron Goulart, Keith Roberts, Greg Benford; columns by Judith Merril and Isaac Asimov. The pages are yellowing at the edges. The price was 50 cents. It happens to be the first issue in which my name appears as editor.

Twenty-five years and two dollars later, it is time to announce that this is my last issue as editor. I have somewhat odd and mixed feelings about this. There is the usual large pile of submissions across the room. Most of these stories aren't very good, and I admit to a considerable sense of relief that when I finish this pile, there won't be any others. But what about that small surge of pleasure when I find something special? I'll miss that, I know.


The business of publishing a magazine isn't getting any simpler. The tangle of financial, circulation, advertising and production problems on my desk grows higher every year; it seems time to devote myself to these areas (take longer lunches and vacations, say my friends). And so I am taking off my editorial hat

and tossing it to a very capable person who will give this crucial job the single-minded attention it needs.

Kristine Katherine Rusch will be the new editor of F&SF. She has been a free-lance writer since 1982 and in 1989 received the John W. Campbell Award as best new writer in the fantasy and science fiction field. She is also an experienced editor, the winner of a World Fantasy Award for her editing work at Pulphouse Publishing Co.

Ms. Rusch is only the sixth editor in F&SF's 42 year history. The founding editors, in 1949, were Anthony Boucher and J. Francis McComas, followed by Robert Mills, Avram Davidson and myself.

You can look forward, in time, to some changes, as the magazine moves to reflect the tastes and point of view of the new editor. That's all to the good. Yet I think Kristine Rusch is also sensitive to whatever is good or distinctive about the past. F&SF is in good editorial hands, and we remain open to your comments and suggestions as we move into the 1990's.



Will there be  
any victor when  
humans and  
aliens alike are  
caught up in a  
war far older than  
either race?

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*Karen Joy Fowler has been an infrequent F&SF contributor, but her stories (most recently "Face Value," November 1986) shine with quality. Her new story opens with a mysterious disappearance and the beginnings of a modern plague . . .*

# The Dark

**By Karen Joy Fowler**

**I**N THE SUMMER of 1954, Anna and Richard Becker disappeared from Yosemite National Park along with Paul Becker, their three-year-old son. Their campsite was intact; two paper plates with half-eaten frankfurters remained on the picnic table, and a third frankfurter was in the trash. The rangers took several black-and-white photographs of the meal, which, when blown up to eight by ten, as part of the investigation, showed clearly the words *love bites*, carved into the wooden picnic table many years ago. There appeared to be some fresh scratches as well; the expert witness at the trial attributed them, with no great assurance, to raccoon.

The Beckers' car was still backed into the campsite, a green DeSoto with a spare key under the right bumper and half a tank of gas. Inside the tent, two sleeping bags had been zipped together marital style and laid on a large tarp. A smaller flannel bag was spread over an inflated pool raft. Toiletries included three toothbrushes; Ipana toothpaste, squeezed in the middle; Ivory soap; three washcloths; and one towel. The newspapers dis-

creetly made no mention of Anna's diaphragm, which remained powdered with talc, inside its pink shell, or of the fact that Paul apparently still took a bottle to bed with him.

Their nearest neighbor had seen nothing. He had been in his hammock, he said, listening to the game. Of course, the reception in Yosemite was lousy. At home he had a shortwave set; he said he had once pulled in Dover, clear as a bell. "You had to really concentrate to hear the game," he told the rangers. "You could've dropped the bomb. I wouldn't have noticed."

Anna Becker's mother, Edna, received a postcard postmarked a day earlier. "Seen the firefall," it said simply. "Home Wednesday. Love." Edna identified the bottle. "Oh yes, that's Paul's bokkie," she told the police. She dissolved into tears. "He never goes anywhere without it," she said.

In the spring of 1960, Mark Cooper and Manuel Rodriguez went on a fishing expedition in Yosemite. They set up a base camp in Tuolumne Meadows and went off to pursue steelhead. They were gone from camp approximately six hours, leaving their food and a six-pack of beer zipped inside their backpacks zipped inside their tent. When they returned, both beer and food were gone. Canine footprints circled the tent, but a small and mysterious handprint remained on the tent flap. "Raccoon," said the rangers who hadn't seen it. The tent and packs were undamaged. Whatever had taken the food had worked the zippers. "Has to be raccoon."

The last time Manuel had gone backpacking, he'd suspended his pack from a tree to protect it. A deer had stopped to investigate, and when Manuel shouted to warn it off, the deer hooked the pack over its antlers in a panic, tearing the pack loose from the branch and carrying it away. Pack and antlers were so entangled, Manuel imagined the deer must have worn his provisions and clean shirts until antler-shedding season. He reported that incident to the rangers, too, but what could anyone do? He was reminded of it, guiltily, every time he read *Thidwick, the Big-Hearted Moose* to his four-year-old son.

Manuel and Mark arrived home three days early. Manuel's wife said she'd been expecting him.

She emptied his pack. "Where's the can opener?" she asked.

"It's there somewhere," said Manuel.

"It's not," she said.

"Check the shirt pocket."

"It's not here." Manuel's wife held the pack upside down and shook it. Dead leaves fell out. "How were you going to drink the beer?" she asked.

In August of 1962, Caroline Crosby, a teenager from Palo Alto, accompanied her family on a forced march from Tuolumne Meadows to Vogel-sang. She carried fourteen pounds in a pack with an aluminum frame — and her father said it was the lightest pack on the market, and she should be able to carry one-third her weight, so fourteen pounds was nothing, but her back stabbed her continuously in one coin-sized spot just below her right shoulder, and it still hurt the next morning. Her boots left a blister on her right heel, and her pack straps had rubbed. Her father had bought her a mummy bag with no zipper so as to minimize its weight; it was stifflingly hot, and she sweated all night. She missed an overnight at Ann Watson's house, where Ann showed them her sister's Mark Eden bust developer, and her sister retaliated by freezing all their bras behind the twin-pops. She missed "The Beverly Hillbillies."

Caroline's father had quit smoking just for the duration of the trip so as to spare himself the weight of cigarettes, and made continual comments about Nature, which were laudatory in content and increasingly abusive in tone. Caroline's mother kept telling her to smile.

In the morning her father mixed half a cup of stream water into a packet of powdered eggs and cooked them over a Coleman stove. "Damn fine breakfast," he told Caroline intimidatingly as she stared in horror at her plate. "Out here in God's own country. What else could you ask for?" He turned to Caroline's mother, who was still trying to get a pot of water to come to a boil. "Where's the goddamn coffee?" he asked. He went to the stream to brush his teeth with a toothbrush he had sawed the handle from in order to save the weight. Her mother told her to please make a little effort to be cheerful and not spoil the trip for everyone.

One week later she was in Letterman Hospital in San Francisco. The diagnosis was septicemic plague.

Which is finally where I come into the story. My name is Keith Harmon. B.A. in history with a special emphasis on epidemics. I probably know as much as anyone about the plague of Athens. Typhus. Tarantism. Tsutsugamushi fever. It's an odder historical specialty than it ought to be.



More battles have been decided by disease than by generals — and if you don't believe me, take a closer look at the Crusades or the fall of the Roman Empire or Napoleon's Russian campaign.

My M.A. is in public administration. Vietnam veteran, too, but in 1962 I worked for the state of California as part of the plague-monitoring team. When Letterman's reported a plague victim, Sacramento sent me down to talk to her.

Caroline had been moved to a private room. "You're going to be fine," I told her. Of course, she was. We still lose people to the pneumonic plague, but the slower form is easily cured. The only tricky part is making the diagnosis.

"I don't feel well. I don't like the food," she said. She pointed out Letterman's Tuesday menu. "Hawaiian Delight. You know what that is? Green Jello-O with a canned pineapple ring on top. What's delightful about that?" She was feverish and lethargic. Her hair lay limply about her head, and she kept tangling it in her fingers as she talked. "I'm missing a lot of school." Impossible to tell if this last was a complaint or a boast. She raised her bed to a sitting position and spent most of the rest of the interview looking out the window, making it clear that a view of the Letterman parking lot was more arresting than a conversation with an old man like me. She seemed younger than fifteen. Of course, everyone in the hospital bed feels young. Helpless. "Will you ask them to let me wash and set my hair?"

I pulled a chair over to the bed. "I need to know if you've been anywhere unusual recently. We know about Yosemite. Anywhere else. Hiking out around the airport, for instance." The plague is endemic in the San Bruno Mountains by the San Francisco Airport. That particular species of flea doesn't bite humans, though. Or so we'd always thought. "It's kind of a romantic spot for some teenagers, isn't it?"

I've seen some withering adolescent stares in my time, but this one was practiced. I still remember it. I may be sick, it said, but at least I'm not an idiot. "Out by the airport?" she said. "Oh, right. Real romantic. The radio playing and those 727s overhead. Give me a break."

"Let's talk about Yosemite, then."

She softened a little. "In Palo Alto we go to the water temple," she informed me. "And, no, I haven't been there, either. My parents *made* me go to Yosemite. And now I've got bubonic plague." Her tone was one of

satisfaction. "I think it was the powdered eggs. They *made* me eat them. I've been sick ever since."

"Did you see any unusual wildlife there? Did you play with any squirrels?"

"Oh, right," she said. "I always play with squirrels. Birds sit on my fingers." She resumed the stare. "My parents didn't tell you what I saw?"

"No," I said.

"Figures." Caroline combed her fingers through her hair. "If I had a brush, I could at least rat it. Will you ask the doctors to bring me a brush?"

"What did you see, Caroline?"

"Nothing. According to my parents. No big deal." She looked out at the parking lot. "I saw a boy."

She wouldn't look at me, but she finished her story. I heard about the mummy bag and the overnight party she missed. I heard about the eggs. Apparently, the altercation over breakfast had escalated, culminating in Caroline's refusal to accompany her parents on a brisk hike to Ireland Lake. She stayed behind, lying on top of her sleeping bag and reading the part of *Green Mansions* where Abel eats a fine meal of anteater flesh. "After the breakfast I had, my mouth was watering," she told me. Something made her look up suddenly from her book. She said it wasn't a sound. She said it was a silence.

A naked boy dipped his hands into the stream and licked the water from his fingers. His fingernails curled toward his palms like claws. "Hey," Caroline told me she told him. She could see his penis and everything. The boy gave her a quick look, and then backed away into the trees. She went back to her book.

She described him to her family when they returned. "Real dirty," she said. "Real hairy."

"You have a very superior attitude," her mother noted. "It's going to get you in trouble someday."

"Fine," said Caroline, feeling superior. "Don't believe me." She made a vow never to tell her parents anything again. "And I never will," she told me. "Not if I have to eat powdered eggs until I die."

*At this time there started a plague. It appeared not in one part of the world only, not in one race of men only, and not in any particular season; but it spread over the entire earth, and afflicted all without mercy of*

both sexes and of every age. It began in Egypt, at Pelusium; thence it spread to Alexandria and to the rest of Egypt; then went to Palestine, and from there over the whole world. . . .

In the second year, in the spring, it reached Byzantium and began in the following manner: To many there appeared phantoms in human form. Those who were so encountered, were struck by a blow from the phantom, and so contracted the disease. Others locked themselves into their houses. But then the phantoms appeared to them in dreams, or they heard voices that told them that they had been selected for death.

**T**HIS COMES from Procopius's account of the first pandemic. A.D. 541, *De Bello Persico*, chapter XXII. It's the only explanation I can give you for why Caroline's story made me so uneasy, why I chose not to mention it to anyone. I thought she'd had a fever dream, but thinking this didn't settle me any. I talked to her parents briefly, and then went back to Sacramento to write my report.

We have no way of calculating the deaths in the first pandemic. Gibbon says that during three months, five to ten thousand people died daily in Constantinople, and many Eastern cities were completely abandoned.

The second pandemic began in 1346. It was the darkest time the planet has known. A third of the world died. The Jews were blamed, and, throughout Europe, pogroms occurred wherever sufficient health remained for the activity. When murdering Jews provided no alleviation, a committee of doctors at the University of Paris concluded the plague was the result of an unfortunate conjunction of Saturn, Jupiter, and Mars.

The third pandemic occurred in Europe during the 15th to 18th centuries. The fourth began in China in 1855. It reached Hong Kong in 1894, where Alexandre Yersin of the Institut Pasteur at least identified the responsible bacilli. By 1898 the disease had killed 6 million people in India. Dr. Paul-Louis Simond, also working for the Institut Pasteur, but stationed in Bombay, finally identified fleas as the primary carriers. "On June 2, 1898, I was overwhelmed," he wrote. "I had just unveiled a secret which had tormented man for so long."

His discoveries went unnoticed for another decade or so. On June 27, 1899, the disease came to San Francisco. The governor of California, acting in protection of business interests, made it a felony to publicize the presence of the plague. People died instead of *syphilitic septicemia*. Because

of this deception, thirteen of the Western states are still designated plague areas.

The state team went into the high country in early October. Think of us as soldiers. One of the great mysteries of history is why the plague finally disappeared. The rats are still here. The fleas are still here. The disease is still here; it shows up in isolated cases like Caroline's. Only the epidemic is missing. We're in the middle of the fourth assault. The enemy is elusive. The war is unwinnable. We remain vigilant.

The Vogelsang Camp had already been closed for the winter. No snow yet, but the days were chilly and the nights below freezing. If the plague was present, it wasn't really going to be a problem until spring. We amused ourselves, poking sticks into warm burrows looking for dead rodents. We set out some traps. Not many. You don't want to decrease the rodent population. Deprive the fleas of their natural hosts, and they just look for replacements. They just bring the war home.

We picked up a few bodies, but no positives. We could have dusted the place anyway as a precaution. *Silent Spring* came out in 1962, but I hadn't read it.

I saw the coyote on the fourth day. She came out of a hole on the bank of Lewis Creek and stood for a minute with her nose in the air. She was grayed with age around her muzzle, possibly a bit arthritic. She shook out one hind leg. She shook out the other. Then, right as I watched, Caroline's boy climbed out of the burrow after the coyote.

I couldn't see the boy's face. There was too much hair in the way. But his body was hairless, and even though his movements were peculiar and inhuman, I never thought that he was anything but a boy. Twelve years old or maybe thirteen, I thought, although small for thirteen. Wild as a wolf, obviously. Raised by coyotes maybe. But clearly human. Circum-sized, if anyone is interested.

I didn't move. I forgot about Procopius and stepped in to the *National Enquirer* instead. Marilyn was in my den. Elvis was in my rinse cycle. It was my lucky day. I was amusing myself when I should have been awed. It was a stupid mistake. I wish now that I'd been someone different.

The boy yawned and closed his eyes, then shook himself awake and followed the coyote along the creek and out of sight. I went back to camp. The next morning we surrounded the hole and netted them coming out.

This is the moment it stopped being such a lark. This is an uncomfortable memory. The coyote was terrified, and we let her go. The boy was terrified, and we kept him. He scratched us and bit and snarled. He cut me, and I thought it was one of his nails, but he turned out to be holding a can opener. He was covered with fleas, fifty or sixty of them visible at a time, which jumped from him to us, and they all bit, too. It was like being attacked by a cloud. We sprayed the burrow and the boy and ourselves, but we'd all been bitten by then. We took an immediate blood sample. The boy screamed and rolled his eyes all the way through it. The reading was negative. By the time we all calmed down, the boy really didn't like us.

Clint and I tied him up, and we took turns carrying him down to Tuolumne. His odor was somewhere between dog and boy, and worse than both. We tried to clean him up in the showers at the ranger station. Clint and I both had to strip to do this, so God knows what he must have thought we were about. He reacted to the touch of water as if it burned. There was no way to shampoo his hair, and no one with the strength to cut it. So we settled for washing his face and hands, put our clothes back on, gave him a sweater that he dropped by the drain, put him in the backseat of my Rambler, and drove to Sacramento. He cried most of the way, and when we went around curves, he allowed his body to be flung unresisting from one side of the car to the other, occasionally knocking his head against the door handle with a loud, painful sound.

I bought him a ham sandwich when we stopped for gas in Modesto, but he wouldn't eat it. He was a nice-looking kid, had a normal face, freckled, with blue eyes, brown hair; and if he'd had a haircut, you could have imagined him in some Sears catalog modeling raincoats.

One of life's little ironies. It was October 14. We rescue a wild boy from isolation and deprivation and winter in the mountains. We bring him civilization and human contact. We bring him straight into the Cuban Missile Crisis.

Maybe that's why you don't remember reading about him in the paper. We turned him over to the state of California, which had other things on its mind.

The state put him in Mercy Hospital and assigned maybe a hundred doctors to the case. I was sent back to Yosemite to continue looking for

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## The state put him in Mercy Hospital and assigned a hundred doctors to the case.

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fleas. The next time I saw the boy, about a week had passed. He'd been cleaned up, of course. Scoured of parasites, inside and out. Measured. He was just over four feet tall and weighed seventy-five pounds. His head was all but shaved so as not to interfere with the various neurological tests, which had turned out normal and were being redone. He had been observed rocking in a seated position, left to right and back to front, mouth closed, chin up, eyes staring at nothing. Occasionally he had small spasms, convulsive movements, which suggested abnormalities in the nervous system. His teeth needed extensive work. He was sleeping under his bed. He wouldn't touch his Hawaiian Delight. He liked us even less than before.

About this time I had a brief conversation with a doctor whose name I didn't notice. I was never able to find him again. Red-haired doctor with glasses. Maybe thirty, thirty-two years old. "He's got some unusual musculature," this red-haired doctor told me. "Quite singular. Especially the development of the legs. He's shown us some really surprising capabilities." The boy started to howl, an unpleasant, inhuman sound that started in his throat and ended in yours. It was so unhappy. It made me so unhappy to hear it. I never followed up on what the doctor had said.

I felt peculiar about the boy, responsible for him. He had such a *boyish* face. I visited several times, and I took him little presents, a Dodgers baseball cap and an illustrated *Goldilocks and the Three Bears* with the words printed big. Pretty silly, I suppose, but what would you have gotten? I drove to Fresno and asked Manuel Rodriguez if he could identify the can opener. "Not with any assurance," he said. I talked personally to Sergeant Redburn, the man from Missing Persons. When he told me about the Beckers, I went to the state library and read the newspaper articles for myself. Sergeant Redburn thought the boy might be just about the same age as Paul Becker, and I thought so, too. And I know the sergeant went to talk to Anna Becker's mother about it, because he told me she was going to come and try to identify the boy.

By now it's November. Suddenly I get a call sending me back to Yosemite. In Sacramento they claim the team has reported a positive, but when I

arrive in Yosemite, the whole team denies it. Fleas are astounding creatures. They can be frozen for a year or more and then revived to full activity. But November in the mountains is a stupid time to be out looking for them. It's already snowed once, and it snows again, so that I can't get my team back out. We spend three weeks in the ranger station at Vogelsang huddled around our camp stoves while they air-drop supplies to us. And when I get back, a doctor I've never seen before, a Dr. Frank Li, tells me the boy, who was not Paul Becker, died suddenly of a seizure while he slept. I have to work hard to put away the sense that it was my fault, that I should have left the boy where he belonged.

And then I hear Sergeant Redburn has jumped off the Golden Gate Bridge.

*Non Gratum Anus Rodentum.* Not worth a rat's ass. This was the unofficial motto of the tunnel rats. We're leaping ahead here. Now it's 1967. Vietnam. Does the name Cu Chi mean anything to you? If not, why not? The district of Cu Chi is the most bombed, shelled, gassed, strafed, defoliated, and destroyed piece of earth in the history of warfare. And beneath Cu Chi runs the most complex part of a network of tunnels that connects Saigon all the way to the Cambodian border.

I want you to imagine, for a moment, a battle fought entirely in the dark. Imagine that you are in a hole that is too hot and too small. You cannot stand up; you must move on your hands and knees by touch and hearing alone through a terrain you can't see toward an enemy you can't see. At any moment you might trip a mine, put your hand on a snake, put your face on a decaying corpse. You know people who have done all three of these things. At any moment the air you breathe might turn to gas, the tunnel become so small you can't get back out; you could fall into a well of water and drown; you could be buried alive. If you are lucky, you will put your knife into an enemy you may never see before he puts his knife into you. In Cu Chi the Vietnamese and the Americans created, inch by inch, body part by body part, an entirely new type of warfare.

Among the Vietnamese who survived are soldiers who lived in the tiny underground tunnels without surfacing for five solid years. Their eyesight was permanently damaged. They suffered constant malnutrition, felt lucky when they could eat spoiled rice and rats. Self-deprivation was their weapon; they used it to force the soldiers of the most technically ad-

vanced army in the world to face them with knives, one on one, underground, in the dark.

On the American side, the tunnel rats were all volunteers. You can't force a man to do what he cannot do. Most Americans hyperventilated, had attacks of claustrophobia, were too big. The tunnel rats could be no bigger than the Vietnamese, or they wouldn't fit through the tunnels. Most of the tunnel rats were Hispanics and Puerto Ricans. They stopped wearing after-shave so the Vietcong wouldn't smell them. They stopped chewing gum, smoking, and eating candy because it impaired their ability to sense the enemy. They had to develop the sonar of bats. They had, in their own words, to become animals. What they did in the tunnels, they said, was unnatural.

In 1967 I was attached to the 521st Medical Detachment. I was an old man by Vietnamese standards, but then, I hadn't come to fight in the Vietnam War. Remember that the fourth pandemic began in China. Just before he died, Chinese poet Shih Tao-nan wrote:

*Few days following the death of the rats,  
Men pass away like falling walls.*

Between 1965 and 1970, 24,848 cases of the plague were reported in Vietnam.

War is the perfect breeding ground for disease. They always go together, the trinity: war, disease, and cruelty. Disease was my war. I'd been sent to Vietnam to keep my war from interfering with everybody else's war.

In March we received by special courier a package containing three dead rats. The rats had been found — already dead, but leashed — inside a tunnel in Hau Nghia province. Also found — but not sent to us — were a syringe, a phial containing yellow fluid, and several cages. I did the test myself. One of the dead rats carried the plague.

There has been speculation that the Vietcong were trying to use plague rats as weapons. It's also possible they were merely testing the rats prior to eating them themselves. In the end, it makes little difference. The plague was there in the tunnels whether the Vietcong used it or not.

I set up a tent outside Cu Chi town to give boosters to the tunnel rats. One of the men I inoculated was David Rivera. "David has been into the



tunnels so many times, he's a legend," his companions told me.

"Yeah," said David. "Right. Me and Victor."

"Victor Charlie?" I said. I was just making conversation. I could see David, whatever his record in the tunnels, was afraid of the needle. He held out one stiff arm. I was trying to get him to relax.

"No. Not hardly. Victor is the one." He took his shot, put his shirt back on, gave up his place to the next man in line.

"Victor can see in the dark," the next man told me.

"Victor Charlie?" I asked again.

"No," the man said impatiently.

"You want to know about Victor?" David said. "Let me tell you about Victor. Victor's the one who comes when someone goes down and doesn't come back out."

"Victor can go faster on his hands and knees than most men can run," the other man said. I pressed cotton on his arm after I withdrew the needle; he got up from the table. A third man sat down and took off his shirt.

David still stood next to me. "I go into this tunnel. I'm not too scared, because I think it's cold; I'm not *feeling* anybody else there, and I'm maybe a quarter of a mile in, on my hands and knees, when I can almost see a hole in front of me, blacker than anything else in the tunnel, which is all black, you know. So I go into the hole, feeling my way, and I have this funny sense like I'm not moving into the hole; the hole is moving over to me. I put out my hands, and the ground moves under them."

"Shit," said the third man. I didn't know if it was David's story or the shot. A fourth man sat down.

"I risk a light, and the whole tunnel is covered with spiders, covered like wallpaper, only worse, two or three bodies thick," David said. "I'm sitting on them, and the spiders are already inside my pants and inside my shirt and covering my arms — and it's fucking Vietnam, you know; I don't even know if they're poisonous or not. Don't care, really, because I'm going to die just from having them on me. I can feel them moving toward my face. So I start to scream, and then this little guy comes and pulls me back out a ways, and then he sits for maybe half an hour, calm as can be, picking spiders off me. When I decide to live after all, I go back out. I tell everybody. 'That was Victor,' they say. 'Had to be Victor.'"

"I know a guy says Victor pulled him from a hole," the fourth soldier

said. "He falls through a false floor down maybe twelve straight feet into this tiny little trap with straight walls all around and no way up, and Victor comes down after him. *Jumps* back out, holding the guy in his arms. Twelve feet; the guys swears it."

"Tiny little guy," said David. "Even for V.C., this guy'd be tiny."

"He just looks tiny," the second soldier said. "I know a guy saw Victor buried under more than a ton of dirt. Victor just digs his way out again. No broken bones, no nothing."

Inexcusably slow, and I'd been told twice, but I had just figured out that Victor wasn't short for V.C. "I'd better inoculate this Victor," I said. "You think you could send him in?"

The men stared at me. "You don't get it, do you?" said David.

"Victor don't report," the fourth man says.

"No C.O.," says the third man. "No unit."

"He's got the uniform," the second man tells me. "So we don't know if he's special forces of some sort or if he's AWOL down in the tunnels."

"Victor lives in the tunnels," said David. "Nobody up top has ever seen him."

I tried to talk to one of the doctors about it. "Tunnel vision," he told me. "We get a lot of that. Forget it."

**I**N MAY we got a report of more rats — some leashed, some in cages — in a tunnel near Ah Nhon Tay village in the Ho Bo Woods. But no one wanted to go in and get them, because these rats were alive. And somebody got the idea this was my job, and somebody else agreed. They would clear the tunnel of V.C. first, they promised me. So I volunteered.

Let me tell you about rats. Maybe they're not responsible for the plague, but they're still destructive to every kind of life-form and beneficial to none. They eat anything that lets them. They breed during all seasons. They kill their own kind; they can do it singly, but they can also organize and attack in hordes. The brown rat is currently embroiled in a war of extinction against the black rat. Most animals behave better than that.

I'm not afraid of rats. I read somewhere that about the turn of the century, a man in western Illinois heard a rustling in his fields one night. He got out of bed and went to the back door, and behind his house he

saw a great mass of rats that stretched all the way to the horizon. I suppose this would have frightened me. All those naked tails in the moonlight. But I thought I could handle a few rats in cages, no problem.

It wasn't hard to locate them. I was on my hands and knees, but using a flashlight. I thought there might be some loose rats, too, and that I ought to look at least; and I'd also heard that there was an abandoned V.C. hospital in the tunnel that I was curious about. So I left the cages and poked around in the tunnels a bit; and when I'd had enough, I started back to get the rats, and I hit a water trap. There hadn't been a water trap before, so I knew I must have taken a wrong turn. I went back a bit, took another turn, and then another, and hit the water trap again. By now I was starting to panic. I couldn't find anything I'd ever seen before except the damn water. I went back again, farther without turning, took a turn, hit the trap.

I must have tried seven, eight times. I no longer thought the tunnel was cold. I thought the V.C. had closed the door on my original route so that I wouldn't find it again. I thought they were watching every move I made, pretty easy with me waving my flashlight about. I switched it off. I could hear them in the dark, their eyelids closing and opening, their hands tightening on their knives. I was sweating, head to toe, like I was ill, like I had the mysterious English sweating sickness or the *Suette des Picards*.

And I knew that to get back to the entrance, I had to go into the water. I sat and thought that through, and when I finished, I wasn't the same man I'd been when I began the thought.

It would have been bad to have to crawl back through the tunnels with no light. To go into the water with no light, not knowing how much water there was, not knowing if one lungful of air would be enough or if there were underwater turns so you might get lost before you found air again, was something you'd have to be crazy to do. I had to do it, so I had to be crazy first. It wasn't as hard as you might think. It took me only a minute.

I filled my lungs as full as I could. Emptied them once. Filled them again and dove in. Someone grabbed me by the ankle and hauled me back out. It frightened me so much I swallowed water so I came up coughing and kicking. The hand released me at once, and I lay there for a bit, dripping water and still sweating, too, feeling the part of the tunnel that was directly below my body turn to mud, while I tried to convince myself that no one was touching me.

Then I was crazy enough to turn my light on. Far down the tunnel,

just within range of the light, knelt a little kid dressed in the uniform of the rats. I tried to get closer to him. He moved away, just the same amount I had moved, always just in the light. I followed him down one tunnel, around a turn, down another. Outside, the sun rose and set. We crawled for days. My right knee began to bleed.

"Talk to me," I asked him. He didn't.

Finally he stood up ahead of me. I could see the rat cages, and I knew where the entrance was behind him. And then he was gone. I tried to follow with my flashlight, but he'd jumped or something. He was just gone.

"Victor," Rat Six told me when I finally came out. "Goddamn Victor."

Maybe so. If Victor was the same little boy I put a net over in the high country in Yosemite.

When I came out, they told me less than three hours had passed. I didn't believe them. I told them about Victor. Most of them didn't believe me. Nobody outside the tunnels believed in Victor. "We just sent home one of the rats," a doctor told me. "He emptied his whole gun into a tunnel. Claimed there were V.C. all around him, but that he got them. He shot every one. Only, when we went down to clean it up, there were no bodies. All his bullets were found in the walls.

"Tunnel vision. Everyone sees things. It's the dark. Your eyes no longer impose any limit on the things you can see."

I didn't listen. I made demands right up the chain of command for records; recruitment, AWOLs, special projects. I wanted to talk to everyone who'd ever seen Victor. I wrote Clint to see what he remembered of the drive back from Yosemite. I wrote a thousand letters to Mercy Hospital, telling them I'd uncovered their little game. I demanded to speak with the red-haired doctor with glasses whose name I never knew. I wrote the Curry Company and suggested they conduct a private investigation into the supposed suicide of Sergeant Redburn. I asked the CIA what they had done with Paul's parents. That part was paranoid. I was so unstrung I thought they'd killed his parents and given him to the coyote to raise him up for the tunnel wars. When I calmed down, I knew the CIA would never be so farsighted. I knew they'd just gotten lucky. I didn't know what happened to the parents; still don't.

There were so many crazy people in Vietnam, it could take them a long time to notice a new one, but I made a lot of noise. A team of three

doctors talked to me for a total of seven hours. Then they said I was suffering from delayed guilt over the death of my little dog-boy, and that it surfaced, along with every other weak link in my personality, in the stress and the darkness of the tunnels. They sent me home. I missed the moon landing, because I was having a nice little time in a hospital of my own.

When I was finally and truly released, I went looking for Caroline Crosby. The Crosbys still lived in Palo Alto, but Caroline did not. She'd started college at Berkeley, but then she'd dropped out. Her parents hadn't seen her for several months.

Her mother took me through their beautiful house and showed me Caroline's old room. She had a canopy bed and her own bathroom. There was a mirror with old pictures of some boy on it. A throw rug with roses. There was a lot of pink. "We drive through the Haight every weekend," Caroline's mother said. "Just looking." She was pale and controlled. "If you should see her, would you tell her to call?"

I would not. I made one attempt to return one little boy to his family, and look what happened. Either Sergeant Redburn jumped from the Golden Gate Bridge in the middle of his investigation or he didn't. Either Paul Becker died in Mercy Hospital or he was picked up by the military to be their special weapon in a special war.

I've thought about it now for a couple of decades, and I've decided that, at least for Paul, once he'd escaped from the military, things didn't work out so badly. He must have felt more at home in the tunnels under Cu Chi than he had under the bed in Mercy Hospital.

There is a darkness inside us all that is animal. Against some things — untreated or untreatable disease, for example, or old age — the darkness is all we are. Either we are strong enough animals or we are not. Such things pare everything that is not animal away from us. As animals, we have a physical value, but in moral terms we are neither good nor bad. Morality begins on the way back from the darkness.

The first two plagues were largely believed to be a punishment for man's sinfulness. "So many died," wrote Agnolo di Tura the Fat, who buried all five of his own children himself, "that all believed that it was the end of the world." This being the case, you'd imagine the cessation of the plague must have been accompanied by outbreaks of charity and godliness. The truth was just the opposite. In 1349, in Erfurt, Germany, of the

three thousand Jewish residents there, not one survived. This is a single instance of a barbarism so marked and so pervasive, it can be understood only as a form of mass insanity.

Here is what Procopius said: *And after the plague had ceased, there was so much depravity and general licentiousness, that it seemed as though the disease had left only the most wicked.*

When men are turned into animals, it's hard for them to find their way back to themselves. When children are turned into animals, there's no self to find. There's never been a feral child who found his way out of the dark. Maybe there's never been a feral child who wanted to.

You don't believe I saw Paul in the tunnels at all. You think I'm crazy or, charitably, that I was crazy then, just for a little while. Maybe you think the CIA would never have killed a policeman or tried to use a little child in a black war even though the CIA has done everything else you've ever been told and refused to believe.

That's O.K. I like your version just fine. Because if I made him up, and all the tunnel rats who ever saw him made him up, then he belongs to us, he marks us. Our vision, our Procopian phantom in the tunnels. Victor to take care of us in the dark.

Caroline came home without me. I read her wedding announcement in the paper more than twenty years ago. She married a Stanford chemist. There was a picture of her in her parents' backyard with gardenias in her hair. She was twenty-five years old. She looked happy. I never did go talk to her.

So here's a story for you, Caroline:

A small German town was much plagued by rats who ate the crops and the chickens, the ducks, the cloth and the seeds. Finally the citizens called in an exterminator. He was the best; he trapped and poisoned the rats. Within a month he had deprived the fleas of most of their hosts.

The fleas then bit the children of the town instead. Hundreds of children were taken with a strange dancing and raving disease. Their parents tried to control them, tried to keep them safe in their beds, but the moment their mothers' backs were turned, the children ran into the streets and danced. The town was Erfurt. The year was 1237.

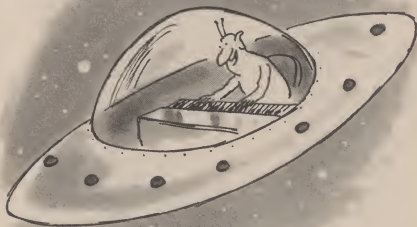
Most of the children danced themselves to death. But not all. A few of them recovered and lived to be grown-ups. They married and worked

and had their own children. They lived reasonable and productive lives.

The only thing is that they still twitch sometimes. Just now and then. They can't help it.

Stop me, Caroline, if you've heard this story before.

FROM THE USAF UFO FILE



*H. M. Peters*

*"I'm Alabamy Bound*

*There'll be no 'Heebie Jeebies' hangin' 'round . . ."*



# BOOKS

## A L G I S B U D R Y S

*The Exile Kiss*, George Alec Effinger, Doubleday Foundation, \$21.95 hardcover, \$10.95 soft

*Judson's Eden*, Keith Laumer, Baen, \$4.95

*Monster*, Dwight V. Swain, Pinnacle, \$3.95

THE PECULIAR thing is, I've never reviewed anything of Effinger's before, to my present knowledge. And surely many a less worthy book meanwhile *has* been reviewed, and... well, now, that could hardly be, could it? Let's just say that . . . well, never mind. We will now proceed to review *The Exile Kiss*, a sequel to *When Gravity Fails* and *A Fire In the Sun*, and devil take the hindmost.

But, first —

Effinger — and I've known him for years, casually — is not quite as other men. It's not that he has a wild-eyed stare, though it's equally true that it's not as if he didn't; it's that one gets the feeling that he has

a wild-eyed stare whether he actually happens to be wearing it at the moment or not, and, that it is directed at us, and that he sees something in us, or possibly just a little bit behind us, that we are going to have to reach an accommodation with lickety split. Which is a bit unsettling, because we honestly didn't know we had such a thing — or, perhaps, that such a thing had us.

Thus, Effinger — *bon vivant*, *raconteur*, man about town — and, without a doubt, the only resident of the great state of Louisiana who has decided to write a series of novels in which there are no Americans except for a casual mention or two, hardly any Christians — and they poorly thought of — and the hero of which is an Arab, in an Arab milieu of several hundred years hence, and in which, incidentally, there is a classic play called "The Death of Rushdie." You see what I mean — Effinger is not quite as other men.

Now, as it happens, I don't, even for a moment, think Islam and the



kind of cosmopolitan culture Effinger writes about are compatible. Islam, as he depicts it here, is fundamentalist. And he does right to depict it as such; it is a clearcut case of, on the one hand, a riotous mob action to avenge the death of a respected man; how can he, on the other hand, have night clubs with strippers who hustle drinks, and how can he have a hero who drinks — and takes dope under far different circumstances from those in which the assassins toked up on cannabis.

The very nature of Islam is fundamentalist, and while I will grant you there are plenty of Arabs to whom the words of the Prophet are subject to very broad interpretation, I do not think that is the same as bridging an unfathomable gulf. The Budayeen — Marid Audran's particular quarter of the entire Arab city he inhabits — does not make sense to me.

Too — though here I may well be arguing with Effinger when in fact he agrees with me — though Doubleday's publicity copy speaks of the Budayeen as "an Arabian ghetto in a Balkanized future Earth," I don't think that can be quite right; there is no sign that client nations treat the Arabs with anything but the utmost respect, Marid Audran specifically included, and there is no sign that there is any larger power in the world than Arabia . . .

so at least two preconditions have been violated for the word "ghetto" to be accurate.

But this does not actually invalidate or validate my point; it does indicate that Doubleday's PR writers are careless, but there's nothing fundamentally new about that. What it does say, though, is that George Alec may not have thought his culture all the way through.

The Arab culture as depicted by Effinger is stable and long-lasting, and seems to cover quite a bit of territory . . . in contrast to, for instance, Cappadocia, which seeks Arab assistance in its wish for independence from Anatolia — which all concerned except possibly the Cappadocians know will not last a lifetime, let alone endure significantly. So either I am missing something, or Effinger has chosen some other book in which to explain how Islam is effective and at the same time could not possibly be. But with that said . . .

It's a rather good book. Marid Audran, for instance, is visibly growing as a human being; there is definitely hope for him. Friedlander Bey, his master, strikes me as practical and matter-of-fact, rather than evil. Indihar, Marid's wife —

But, wait. For those of you who have not read the first two books, the situation is that Marid, a young

man, has for some reason been selected by Friedlander Bey to be his right arm, and though the young man wishes mightily to be left alone to scratch out a living by his wits in the streets of the Budayeen, Friedlander Bey has dragged him, kicking and screaming, into a position of responsibility and power. One of the things that particularly upsets Marid is his marriage to Indihar, and his adoption of her children by her first husband, and his knowledge, from the start, that this is a loveless marriage of convenience. But there are plenty of other things he doesn't like about his increasingly respectable life, and these, throughout the book, plague and bedevil him in various ways.

The main thrust of the book, though, is occasioned by Reba Abu Ali, Friedlander Bey's great enemy, who causes Marid and Friedlander Bey to be framed for murder, and cast out of the city . . . cast out to the point where they wind up in the Empty Quarter of Arabia with nothing but two canteens, hundreds of kilometers from anywhere.

It takes quite a bit of doing to get back; almost half the book, and many adventures, and then it takes the rest of the book to solve the problem of being framed for murder. In the end, Marid does it, and he, and Friedlander Bey, and Indihar,

and Reba Abu Aili, are at rest, preparing for the fourth book in the series, I have no doubt. It's kind of nifty; Marid has grown, some; Indihar has not grown, but she shows signs of being an ally; Friedlander Bey has perhaps grown, too, but in his case we are dealing with a much older man, so that growth is much more subtle. And the same could be said for Reba Abu Ali, who has certainly grown at least to the extent that he recognizes Marid as being considerably more than a fool.

Now, you are going to have to recognize one thing about this book; it not only is set in Arabia, it tells its story in the Arab manner. By which I mean that incidents lead to other incidents not necessarily by physical cause; in fact, that is only a coincidence. What ties this story together are the moral lessons Marid learns at each stop of the way. The whole purpose of the physical story is to serve as the excuse for the series of lessons Marid learns.

These lessons are frequently not dramatic in any immediate sense. Read as a conventional novel, this book has its ups and downs. But read as several chapters in the life of a young man inexorably turning from wastrel into a responsible and in fact very powerful individual, under the tutelage of Friedlander

Bey, they make perfect sense. And that is what is truly important about this book.

The thing is, you see, Effinger is not quite like other men.

Keith Laumer has been reviewed many's the time in these pages; I like Laumer, always have. Which is not to say that I always like his books, nor to indicate that I have spent a great deal of time with Laumer, because I haven't. But it must be, oh, twenty years, anyhow, since Keith and I first met; much more important, over the years he has turned out good, solid product time after time.

All right. What about *Judson's Eden*? Well, it's long, it has some very interesting ideas in it, it reads — a lot — like late-period Heinlein, and what more do you want? (Which is my way of evading the point, which is that this book is not my favorite Laumer.)

I particularly like the zero-zero universe time travel tales, because, in part, they're sideways in time tales, and more can be done with them, intrinsically, than with "straight" time travel. Well, *Judson's Eden* isn't that, exactly — instead, it's a variable time travel tale, among many other things, and you cannot help but admire Laumer for that. But let's back up:

Marl Judson is [A] the Man Who

Knows How; specifically, he has opened up interplanetary space clear to the Oort Cloud, as a piece of private enterprise, much to the dismay and despair of certain legislators, who proceed to strip him of his empire and damn near succeed in incarcerating him under guise of hospitalization. Old — exactly how old is hard to tell, but old — Marl Judson escapes from the hospital, and, with the aid of his trusted assistant, Cookie, eventually steals a ship and sets out on a voyage to nowhere . . . there is nowhere in the Solar System where he can go without being blown out of the sky. For that matter, the space force has already launched all sorts of rockets at him, but fortunately none of them intercepted him.

Well, it turns out that Judson does have a place to go; four billion years ago, the Sun had some kind of close encounter with a brown dwarf star, which caused the Sun's planets to form, and may very well have caused quite similar planets to form around the brown dwarf, which is still within reach. And Judson goes to the brown dwarf, where he does, indeed, find a number of planets and an Earth-sized satellite around one of the planets, and settles down on Judson's Eden, where things quickly become rather strange.

For one thing, the time of the

journey. For another, the patches of flowers, each a different color, each color secreting a hallucinogen — except that Cookie really does see a city; he and Judson go to it — and, later, Cookie really does hover a foot and a half off the ground.

The "city" turns out to be an array of brittle blue crystals, naturally deposited. That, of course, does not explain how Cookie actually saw them. Nor does it much help explain the explosion that happens backwards, the appearance on the planet of a village, relatively old, of the descendants of people from a starship sent to find the "long-dead" Judson; nor the appearance of his — I'll say — full-grown daughter, whom he did not know he had, and who is by a woman he knew about ten years ago, nor does it explain — well, pretty soon the planet is crawling with people from all kinds of times, few of which fit with each other.

There is also the matter of Baggy, a native life form — but the last of his kind, apparently; well, for a while — which is a giant amoeba-like creature. And there is the matter of the native life forms on the other planets in the system. And . . .

What I am saying is that there is a fresh idea or a development of that idea on just about every page. This is not my favorite Laumer

book, as I've said, because to my taste there are too many ideas and not quite enough rationale, and too many threads picked up and then dropped. But — late-period Heinlein was the same way, and a hell of a lot of people read him. So . . .

Dwight V. Swain wrote what may have been the first SF magazine story I ever read. It was in an old, old *Amazing*, it was called "Crusade Across the Void," it was written around a cover painting showing an orange giant clinging to the outside of a spaceship with a startled-looking Earthman looking up from the pilot's seat, and I read it new. Must have been 1940 or so, and I was nine. So you have got to understand that I cannot review a Dwight V. Swain book with quite the same objectivity I bring to, for instance, George Alec Effinger.

Dwight is in his late seventies now, living in Norman, Oklahoma, for the most part, although he and his wife, Joy, have a habit of slipping into Central America, or even unlikelier places, and writing reports which have not cleared a desk in the Central Intelligence Agency. But, be that as it may. . .

Dwight — whom I have known for about eight years, now — used to write for *Amazing* when it was published in Chicago. Practically all those guys are gone, now, except

for Robert Bloch and Howard Browns, and Dwight. (David Wright O'Brien, Farnsworth Wright's nephew, was potentially the best of them all, and was the only science fiction writer of note actually killed in World War II.)

Dwight has bummed around Hollywood long enough to write a very good book on screenplay writing, among others. But what we are going to talk about today is *Monster*, originally written some time ago, and published at last.

*Monster*, set in Hollywood, has to do with Blair Hilliard, who started out in life as an instructor of English, unfortunately got caught in bed with the wife of his department chairman — by the department chairman — and has been heading downhill ever since. On the way down — teaching at a barely credible institution of higher learning if you don't measure too closely — he developed Celeste for a student, and as we see him now he is a veteran of the killing of Celeste's husband, and then her father; a man thoroughly physically

castrated by Celeste, whom he married before he realized she was not a sweet innocent, at all. Involved hip and thigh in a Hollywood cult of Satanists, he finds himself killing them very quickly, one by one, on one particular night. This is ostensibly to cover for the fact that he will kill Celeste; it is ostensibly a cold blooded plan, etc. The only problem is, the dead babies, after they are killed by the cult, *vanish*; and the body of the man whom Hilliard kills first, Mr. Satan, and tosses to the center of the pentagram *vanishes*, and each time this happens, Blair Hilliard seems to gain in luck, and efficiency, and —

But why should I tell you the rest? It's not the greatest story, no. Dwight doesn't try to write that; he writes a reliable product, and considers that to be what it's all about. But sometimes he does a little bit better than that anyhow, and I haven't heard him complain about it, either.

Again, if you don't like horror, you're not going to like this. But if you do . . .



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# Books to Look For

BY ORSON SCOTT CARD

*The Singers of Time*, Frederik Pohl & Jack Williamson (Doubleday/Foundation, cloth/trade paper, 384pp, \$21.95/\$10.95

SCIENCE FICTION has been noted in the past for many inspired collaborations, in which the combination of two fine writers results in fiction that is excellent and yet different from both writers' solo work. One thinks immediately of Kornbluth & Pohl and Niven & Pournelle.

That tradition has been dissipated in recent years by a different kind of "collaboration," in which a big name pro writes an outline and an eager young writer "fleshes it out" (i.e., writes the novel). Cynical readers are learning that the second name on the book, the one that they've never heard of, is the real author. Cynical reviewers, like me, claim that *neither* name is the "author," since neither writer takes real responsibility for the book. Computers could write books with more soul than some of these wretched little assemblages of words on paper.

Do I even need to tell you that *The Singers of Time* belongs in that former, grand tradition, not the squalid modern one? Pohl and Williamson are both writers of great integrity, and what they have wrought together is a fine novel worthy of either of them working alone. Instead of neither taking responsibility for the finished work, *both* do.

The idea is a good one, even if it does have a somewhat timeworn feel to it. Aliens have taken over Earth, enslaving us with kindness; humans have reacted like primitive cultures that eagerly subsume themselves in the "higher" culture that gives them such marvelous goodies. But some humans remember the moral dimension of life; some, too, remember the almost-lost sciences that once allowed us to inch our way starward, instead of taking giant leaps on someone else's shoulders.

Bad enough that we buy the aliens' half-truth that the *taurs*, a species of semi-intelligent slaves, really don't mind being slaughtered for food. What's worse is that we use their system of plug-in "learn-

ing" in which we essentially allow our bodies to be taken over by temporary mental implants, so that we do perfect work — but have no memory of doing it or understanding of what it was we did. Yet when the crisis comes — when the alien mother planet disappears — they must turn to the few humans who remember how to think and learn in order to solve their problem and bring their race back from the brink of destruction.

How it all happens is one of the most wonderful space opera romps I've read in a long time. And because Pohl and Williamson are of the old guard, they don't do it with tongue in cheek, the way Rudy Rucker and Richard Lupoff have (delightfully) done it in recent years. They play it straight. Their heart is in it.

There are drawbacks. The characters seem childish — that is, they feel only one thing at a time. With no complexity of motive, once a character has been given his attitude-of-the-hour he acts it out with relentless determination. And the emotions they feel are usually pretty silly — intelligent people arguing about ideas and discoveries as if they were children in a softball game arguing whether the guy was safe or out. But then, the heroes and gods of the *Iliad* are childish, too. And character does not amount to nothing in the story; at times it

is important indeed.

A worshipful attitude toward "lost human science" is one of the most troubling things about *golden-age sf*, and *Singers of Time* certainly has that view of the scientist as godling, of science itself as the nirvana-like apprehension of Truth. Well, I'm sorry, but that mystical view of science is as boneheadedly wrong as the mystical view of art that seeps like osteoporosis through literary fiction. *Real* science works exactly like government bureaucracy, complete with infighting, inertia, exploitation, careerism, and irresponsible insularity. Genius is routinely ground up and spit out, unless it conforms to certain norms or happens to catch on like a fad. The mystical view of scientists and of science is deceptive and harmful, both for scientists and non-scientists, and this book has a serious case of science worship.

But — these flaws are endemic to the *sf* tradition out of which this book arises. It is a book of a kind, and one of the *best* of that kind. Excellent ideas are well explored in the story. I especially like their starships, which, because they travel at lightspeed, are all waves and therefore can pass through almost any amount of interstellar radiation unharmed. A nice idea which I intend to steal frequently.

If you look for fiction that shows

awareness of all that has happened in science fiction in the last thirty years — echoes of Ellison, LeGuin, Varley, Sterling, Willis, Fowler, or Gibson — forget this book. Science fiction might as well have frozen with Blish. But hey, folks — Blish was terrific, and so, for that matter, were — *are* — Pohl and Williamson. If you like that old-time sci-fi —and I do, in spite of my best literary pretensions — then this book's for you.

*SimEarth* [Maxis, 1991, computer game for IBM & MacIntosh]

Here is the science fiction fan's ultimate computer game. You have a planet, and it's your job to manipulate the environment until it's favorable to sentient life, and then nurture the growing civilizations until they're ready to go forth and colonize other star systems. You can start with Aquaria, a watery planet without landforms, and use volcanos and continental drift to create the dry platforms of life; you can start with pre-Cambrian Earth, or Earth at the dawn of humankind;

or you can opt to terraform Mars or Venus, a difficult project at best. The program will also generate random planets, or will let you play games with James Lovelock's hypothetical Daisyworld, to see how evolution responds to environmental change — and changes the environment in the process.

The manual is thick but well worth exploring, because it helps you understand the processes you're working with on the screen. Anybody who plays at the advanced levels and successfully terraforms a planet or brings a sentient species to interstellar flight deserves college credit; and yet the game is never for a moment dull. This is computer game design at its best —the computer does all the work and you get to make all the interesting decisions. It's also legitimate computer simulation of reality, every bit up to the standard set by Maxis's previous hit, *SimCity*.

If you don't already own a computer, find a store that has *SimEarth* as a demo and play it for a while. You may discover that a home computer is a necessity after all.





*Carolyn Gilman's new story is an extraordinary linguistic leap of imagination, a tale of a world literally built from words . . .*

# Wordworld

**By Carolyn Ives Gilman**

**A**S SOON AS Burgher Coughlit woke up, he had an intuition that the city of Moniker had not survived the night altogether intact. Grumbling, he drew on his fur-lined robe and checked the valuables in the trunk at the foot of his bed. Then he stumped to the window and threw open the shutters. Outside, the six thousand glass windows of the town snapped to attention before his critical eye. One was not as fast as the others, and gleamed late in the rising sun. Coughlit scowled. The world was getting sloppy.

He surveyed the quaint, tile-roofed cottages, looking for any detail that was wrong. Everything looked prosperous and peaceful. Carts rumbled along the road, full of singing peasants in colorful folk costumes bringing their produce to market. In the market square below, maidens wove garlands for their broad-chested sweethearts as beaming grandmothers tended their stalls. Coughlit frowned at the sight of the mountain to the south, for its profile had a familiar outline. People had begun calling it Beer Belly

Mountain several years ago; and though at first, Coughlit had thought nothing about the name, every new day the mountain looked a little more like his own patronly proportions. He now had an uncordial suspicion they had done it on purpose.

The sun peeked sheepishly over the horizon, warming Coughlit's hand on the sill. And then it started to happen. All across the city, the smart glass windows began to waver, then to sweat, and as Coughlit watched horrified, to melt. Glass dripped from wood frames and lead casements, ran in rivulets over surprised sills and down the sides of houses. Coughlit swelled in outrage. This was incompetence! Irresponsibility! And he thought he knew who was to blame.

Frantic footsteps pounded up the stairs, and the cook appeared breathless at the door. "Burgher!" she said. "The glassware, the dishes —they're all melting!"

Under his breath, Coughlit said a word too idiomatic to be used so early in the morning. Then the full enormity of the situation struck him. His face went pasty. "Quick — the cellar!" he said. The stairs shook as he thundered recklessly down, the cook on his heels.

But it was too late. Even in the cobwebby murk, the air had warmed enough, and Coughlit heard the dripping even before he saw the full, horrible sight. He groaned at the devastation, and the cook stood in awed silence at his side. The cellar floor was ankle-deep in a messy flood of melted glass and what had been one of the finest bottled-wine collections in three counties.

"This is it!" Coughlit said, shaking in outrage. "This is the fault of that damned fool Wander! Today I do something about him."

The cook quailed as he stalked magisterially from the room, his bedroom slippers leaving burgundy footprints on the steps.

**W**ANDER STAGGERED blearily from bed to answer the frantic pounding at his door. He clung to the doorframe and tried to focus on the face of Jomp, his landlord's son.

"Get up, Wander. They want to see you down at City Hall right away. They're hopping mad."

Wander shoved his fingers through lank hair. Hopping mad, he thought. Not again. "What time is it?" he managed to say.

"Three hours past dawn."

No wonder his eyelids felt like cardboard. "Don't they know I worked last night?"

"Of course they do," Jomp said impatiently. "That's what they're mad about."

Wander closed the door and scuffed into his bathroom. He was bone weary. While the ordinary citizens of Moniker had slept through the long night, he and the other sixty-seven wordworkers had talked their world back into existence. In manic eight-hour shifts, they had mentioned every name, read every list, described every aspect of the city. For one more day, they had snared chaos in a trap of grammar.

He tried to look at himself in the mirror, but there was no mirror, and the sink was full of some gelatinous glop. He washed it down the drain, then splashed some water on his face. He went back into his bedroom to look for his clothes, then realized he still had them on. It began to occur to him that perhaps he shouldn't have had quite so many beers last night. Wordworkers were never supposed to drink on the job, but they all did it, and it had seemed so safe, so close to morning. . . .

He had no idea what he could have done to make everyone angry. In fact, he had gone to bed rather satisfied with the way he had woven the descriptions of the town's buildings into a story about a mysterious peddler. He looked around. Everything seemed normal. All the shadows were in the right places. The dogs still barked; he could hear them outside his open window. He put on a limp felt hat that had mopped up too many spills at the Moniker tavern, and slouched out.

When Wander cracked open the council room door at City Hall to peer inside, the place was in an uproar. Portly burghers in brocades had appropriated all the comfortable chairs, leaving the few sleep-starved wordworkers they had hauled in to slump on stools and wood-backed benches. Whatever had roused them, it was grave, for Guildmaster Delbanco, head of the wordworkers' brotherhood, was there. Burgher Coughlit was speaking.

"We can no longer put up with this outrage! We cannot have untrustworthy wordworkers, or there is no telling what we'll wake up to in the morning. Remember three months ago, when he forgot to mention shadows? How can you *forget* shadows? Our whole valley looked like cardboard cutouts by some second-rate cartoonist. We were the laughingstock of the county. But this last mistake is monstrous."

Wander tried to slip into the room without being seen, but it was

hopeless. "AHA!" Burgher Coughlit said, then left a portentous silence. Everyone turned to look at Wander as if he were something noisome nailed to the wall.

"What's the problem?" Wander asked.

"The problem? The PROBLEM?" Coughlit swelled. It was a good thing he wasn't in charge of articulating the world, Wander thought peevishly.

Fidget, one of his fellow wordworkers, turned to him. Her face was the color of erased paper, except for the circles under her eyes. She was cradling a coffee mug in nail-bitten hands. "Remember toward morning, Wander? You were telling that story about the peddler coming into town and seeing all the buildings. We were all too . . . busy to notice" — she meant drunk, of course, but if the burghers knew that, everyone would lose their jobs — "and you . . . you used a metaphor."

A gasp ran around the room. "You're kidding," Wander said. He racked his brains. Yes, he remembered now. Something about ice-clear glass. It had sounded creative at the time. He looked up at the window, saw there was no window, and understood. "Shit," he said.

"A metaphor? A METAPHOR?" Coughlit said. "Every child in this town knows how dangerous a metaphor can be at night. How could you be such a fool?"

"It's not easy work, you know, getting creation right," Wander said defensively. "You've never been up at night. It's hard to remember every last detail."

"Why couldn't you just stick to the formulas like everyone else?"

Wander felt testy. "Cook by menu! Paint by numbers! Sure, we could just recite the formulas if you want an ossified world. Unless you have some creativity in your wordwork, it shows. This place was pretty stagnant till I came, you've got to admit. We've loosened it up a lot. . . ." He stopped, seeing the horrified looks around him. He wanted to kick himself. The last thing these people wanted was to think they were entrusting their reality to someone who believed in experiments.

"Dangerous words!" Old Delbanco rose, his deep actor's voice rolling out over the audience. "Wander, you have forgotten our code of ethics. Reality is the common birthright of all. It is not our right to meddle with it. We are merely voices of community values. We do not plan; we preserve."

The burghers still looked as through they were sitting on bees. "Neigh-

bors," Coughlit said gravely, "we have been entrusting our homes, our families, and all we hold dear to an irresponsible . . . poet." The last word thrilled with contempt.

"Now, just a second. If you hadn't believed in it—," Wander started.

"No excuses! I will not feel safe until this man is well out of our city. Let him be creative elsewhere."

There were nods all around the room. Everyone looked to Guildmaster Delbanco to see if he would defend his brother wordworker. But he sat silent. Burgher Coughlit pressed for a vote, and as Wander watched in horror, they took away his job and banned him from wordwork in Moniker forever.

THE WOOD-PANELED back room at the Den of Obscurity, Wander's favorite tavern, was filled with the usual crowd of jerked rustics. Wander slumped at a pockmarked table with a half-empty wooden bowl of beer. Nearby, people were drinking out of tin cups, brass kettles, iron pots — anything they could press into service. At Wander's side, Fidget sat smoking a cigarette with trembling hands. She looked like there were no muscles in her body, only nerves.

"I should have covered for you," she said. "I wasn't thinking straight."

"They would have found out soon enough. Damned stiff-necked hide-bound prigs."

Fidget looked around fearfully to make sure no one could overhear Wander's reckless figures of speech. It was broad daylight, but incautious language was never couth. One might get used to using it.

Wander didn't care. He was feeling wronged, unjustly treated. "Ungrateful bastards. They ought to have a little respect for us and what we do. If it weren't for us wordworkers, they wouldn't be around to complain. Damn it, if it weren't for us, there wouldn't be life on this planet, not this close to a chaos crack. It's a logical fallacy."

"Don't say that!" Fidget hissed, alarmed. "You want to destroy our fictive consensus? God only knows what's holding all this together. If we start thinking it's all a bit of linguistic flimflammy —"

Even Wander, in his beer-blurred mind, realized he had gone too far. "Just joking," he said lamely.

"Look, Wander, I hope you don't mind if I say this." Fidget's tone told him instantly that he was going to mind. "You're a good wordworker. I've

never heard you use bad grammar or a pun. It's just that you've got a bit of a satirical tone. Every day this town got to be a little bit more of a caricature."

"It was a caricature when I came!" Wander protested. "Look at it: preindustrial folk utopia, happy peasants, benign middle class. It's just too quaint to be believed. It's totally unoriginal, totally false to history."

"So who wants to live in history?" Fidget said. "You're talking cockroaches and outdoor plumbing. No, thanks. We've all got to *like* where we are, as well as believe in it."

"It's got no verisimilitude."

"Oh, don't give me that." Fidget lit a new cigarette from the stub of the old one. "This is the best we can agree on, O.K.? All right, it's hackneyed. But all we're supposed to do is maintain order—"

"The pecking order," Wander muttered.

"What's that?"

"The status quo," Wander said. "Those burghers—"

Fidget glanced around and lowered her voice. This was the kind of conversation wordworkers had only among themselves. "Those burghers weren't nearly so bad till you came along with your comic-opera view of them. In a way, you brought this down on yourself."

"That sure cheers me up," Wander said.

"All I'm saying is, the next place you go, stop characterizing. Be a little more sincere in your descriptions, or you'll end up in the same fix."

All morning he had been toying with the thought that she might offer to come with him. For a couple weeks, he'd been secretly weaving a little romance scenario around her each night, but so far she'd refused to believe it. He'd thought it finally might have taken. But when she said, "The next place you go," her tone meant she wasn't going to be there. For the second time that morning, he felt booted out, thrown down the steps, with the door locked behind him.

"The next place I go," he repeated glumly.

Where was there to go? The city of Argot was just across the Homily Hills, but he doubted he could get a job there. Their wordworkers were such an in-group, they practically had a jargonistic language of their own. To the east was the barbarous land of Pidgin, a fictive consensus he found utterly improbable. To the west lay one of the dread Ellipses, where no one lived. There the reality dissolved by the crack in the night sky was

never restructured by the strict causal framework of language, and remained fluid all day long. Clearly, he could not go there.

Fidget had fallen asleep with her chin on her hand, and her cigarette still burning between her fingers. He took the cigarette, snubbed it out, put it back in her fingers, then rose to leave.

But as he was pushing out through the crowd, he heard his name spoken. Sitting at a corner table was a stranger whose gaze was following him through the room. Wander stopped, puzzled by a twinge of familiarity. It was plain just looking at him that the stranger was from another genre: lean and sharp, with a world-weary look and an alienated twist to his mouth. He beckoned, pointing to a pack on the bench beside him. Only then did Wander realize, with a shock, that it was the peddler from his story last night. Astonishing! Someone had believed in the character enough to bring him into being. Fascinated, Wander crossed the room.

"I can tell you are a wordworker," the peddler said.

Wander nodded, speechless. This had never happened to him before, not by accident.

"I am a peddler. My name is Dudgeon. Recently I came across an item that may be of interest to a man like you."

What was it he had said about the man's wares? Philters and talismans, relics from lost times. No specifics, though.

"This is it." Dudgeon drew from his pack a small book.

Wander stared, transfixed. A book! Aside from the scripts and inventories used by the wordworkers, such a thing had not been seen for centuries. Awed, he ran his fingers over the cover and riffled the pages. It looked genuine, an original from the time when colonists were first marooned on this world by a dissolving spacecraft they didn't know how to describe. It was almost impossible to imagine how such a thing could have survived. Either the unpredictable distortion currents had missed it night after night for centuries, or someone had sat and read it through each night to preserve it. Or . . . could it have sprung into being from Wander's own subtext?

He opened the book. It had not survived untouched. Some of the pages were blurred or blank; but enough survived to make him catch his breath.

It was real, all right. And it was full of priceless, almost-forgotten words. They danced before his eyes, vibrating with the uncanny power of *meaning*. He quickly snapped the cover shut.

"Impressed?" the peddler said. Wander tried to put the book on the table, and failed. He knew he held the most dangerous object in the world, and couldn't bear to put it down.

"I can't afford anything like this," Wander said.

"I'm not asking money," Dudgeon replied.

This time, Wander did set the book down. "I don't do curses," he said, offended that a figment of his own articulation wouldn't know him better. Forgetful he might be. Satirical or even metaphorical. But not corrupt. He would never utter a word to harm another human being.

"No, no. Spare me your outrage; I know better than to ask that," the peddler said. He looked cynically amused.

"Then what do you want?" Wander was still suspicious. All legitimate requests were submitted to the guildhall and considered in their turn. No one got overnight riches or miracle good fortune. Even if they had, it would probably do them no good. A wordworker could create, but if no one believed it, that creation would soon collapse.

"I only want you to read some of the words, to utter them at night for the first time in centuries. I have starred some; you may choose others. If you do, the book is yours. You will have earned it."

"Why?" Wander demanded.

"Read the words," Dudgeon said. "You will understand."

Wander tried to look reluctant as he reached out for the book again, but in reality he was itching to see its secrets. He opened to a random page and started to read. Many words were unfamiliar, but they reverberated with ancient meaning, and he knew as if by buried memory what they meant. Soon his head was buzzing. Visions flooded his mind. He looked up to say something, and found Dudgeon was gone.

The book was his. He weighed it in his hand as he weighed his options. The simplest thing would be to go to Guildmaster Delbanco and turn over this precious, dangerous artifact, and in gratitude the guild might give him his job back. But as soon as he thought of it, something in him rebelled. What would the guild do with the book, once they had it? Not use it, that was sure. The words he had glimpsed were too alien, too risky. He thought of Delbanco's sour old face, droning about continuity and caution. He might well let the book be destroyed.

And Wander did not want that. It was too late; he had already glimpsed glorious new realms of passionate verbosity. He could feel the air thrum-



ming with potential when he thought the secret words in his mind. The stagnant, clichéd reality around him seemed to go gray before the alternatives.

He could be a responsible citizen, or he could be a hero.

He rose to go wake up Fidget. He would need her help if he was to succeed.

**T**HE SUN moved slowly over Moniker, but at last evening drew near. There was the usual last-minute scurry as people tried to finish up their business. No one wanted to be caught unprepared at nightfall, to look unbeing in the face. The only safe place to be was home in bed with a powerful sleeping potion to keep wakefulness away the whole long night.

Only the wordworkers, trained to face the night, were gathering to do their job. They looked serious, if ill-dressed, as they walked toward the guildhall. It was only later they would get drunk on exhaustion and a little smuggled-in liquor.

Wander and Fidget were already holed up in a storeroom adjoining the main hall, nibbling on cheese sandwiches and coffee. As the sun fell below the horizon, they heard the guildhall door swing ponderously shut, and the wordworkers in the next room settled down to their task.

Ripples of oddness began to pass across the twilit land outside, lapping waves of a great sea to come. Wander stood tiptoe to peer out the small storeroom window at the sight he had always been too busy to see before. A shimmering passed across the town square, leaving things just a little askew. The houses tapered strangely; the water from the fountain shot up and turned a playful figure eight before it fell smirking into its basin. A bird flew by upside down. Wander shivered and turned away.

The comforting hum of the wordworkers talking came muffled through the door. Wander could see them through a crack between two boards. They were working, as usual, in teams of four, each assigned specific topics. Only eight teams were going, but they were rapidly filling the hall with a jostling crowd of rowdy words. As they were spoken, the words seemed to hang for a second in the air, all potential; then, as they passed through the alchemy of understanding, their fictive web solidified and grew real. The noise level grew. Blooming, buzzing, tumbling words filled every cranny of the room, linked in latticed chains by the logic of their syntax.

No one knew how it all worked. They could argue endlessly about whether it was the speaking or the hearing that counted most. All anyone knew for sure was that a wordworker had to be both believable and believed.

Outside, the landscape began to billow in the winds of unmeaning. The sky contracted into a ball of crawling atoms, then exploded again. Before and after became tangled in the chimneystops. In the isolated cottages across the valley, as-yet-unnamed people were winking out of existence in their houses. But around the guildhall, a circle of solid, grammatical normality had formed. Sentence by sentence, it grew, reestablishing the city, re-creating the people. They would wake in the morning never knowing they had ceased to be.

The second shift of wordworkers took over before midnight. By the time the wee hours arrived and the third shift came, the important work that affected lives and well-being was done. It was time for the fine-tuning.

It was almost dawn when the team nearest to the storeroom door began to notice a strange effervescence filling the room, fresh as the air after a thunderstorm. Nearby teams began to look up, breathing in as if they could smell the newness. At his desk, Guildmaster Delbanco looked up, his nose wrinkling. Suspiciously, he stalked down the hall, trying to locate the disturbance. At last he put an ear to the storeroom door. His cheeks puffed out in rage, and he threw the door open.

Inside, Wander looked up from the book he had been reading to Fidget. The floor was littered with popcorn, and a bottle of cheap wine sat by his chair.

"Wander!" Guildmaster Delbanco quivered in rage. "I should have known. Out! Out, while we repair the damage you have done."

Wander rose, his knees shaking but his voice mercifully firm. "No. I'm not going to keep quiet anymore. I'm sick of working in your trite genre, Guildmaster. We all are. I challenge you to a duel."

"Outrageous! I will never allow unauthorized words inside my guildhall."

But everyone was now gathered around, listening. "What's the matter, are you afraid of my words?" Wander said.

The guildmaster growled, "Never! You can't beat me, you—"

"No epithets!" Fidget broke in just in time. "This has got to be fair."

Wander opened his book and began to tell a story. The wordworkers

began to grin and nudge each other as they realized he was using the forbidden technique of irony. He let them all get comfortable before he slipped in a zinger. When he said, "cultural relativism," the guildmaster gasped and reeled back, clutching for balance at an authorized grammar resting on a nearby lectern.

It was Delbanco's turn to rebut. He tried a folktale. They'd all heard it before.

Wander had warmed up now. When he resumed, his narrative was bursting with ancient words. Divisive words. Derisive words. Words that strutted impertinently through the guildhall, giving a raspberry to all the norms, mooning the guildmaster.

Desperately, Delbanco tried to counter with his own. "Stability," he thundered. "Decency. Social norms." The audience swayed, buffeted by the contradictory realities that billowed out.

Deeper and deeper, Wander reached into his books of tricks. The guildmaster's face broke out in a sweat. "Wander," he gasped, "please stop. Don't you know what you're doing? If you go on, we'll have genre wars in the streets, anachronisms in broad daylight. My God, we'll have flashbacks! Don't you care about causality?"

"We'll have all the techniques we want!" Wander said, drunk on possibility. "We'll have minimalists, romantics, idealogues, and realists. We'll knock your syntax off."

He pressed on, burying Delbanco's use-worn words in flying tropes and idiom. The guildmaster sagged. Then Wander let loose with his trump card.

"Paradigm shift!"

Delbanco crumbled. "Stop, stop!" he pleaded. "No more. You have ruined our world, Wander."

The first rays of the sun shone in the guildhall windows. As the guildmaster sank into a chair, another wordworker threw open the door. They all gathered at the doorway, wondering what sort of world they would be walking out into.

Fidget was at Wander's side. "Wander, you were wonderful!" There was a look in her eyes that gave him goose bumps.

"Do you suppose I will have created all those things just by saying the words?" he asked, scratching his head a little uneasily.

"That's the way it's always worked," she answered.

\* \* \*

When Burgher Coughlit woke, he lay for a few minutes with his hands behind his head on the pillow, congratulating himself at having eliminated the problem that always had given him such a sense of nagging uncertainty in the morning. When he rose, he knew all his valuables would be in place, but checked them anyway. Then he opened the shutters, noting with appreciation the shiny new glass in the windowpanes. He beamed benignly out over the city, his city, his oyster.

And then his smile faltered. He stared, unable to believe what he was seeing. He raised the window to stick his hand out.

The buildings were all the same, but something had happened to the people. On the steps of his fine new warehouse across the street, his once-happy workers were walking a picket line. Down the street a hobo was haranguing bystanders; a tonsured man in saffron robes was passing out flowers. Everywhere he turned were a hundred diverse people: Bolsheviks and bedouin, rabbis and republicans. Crowds milled in the street, arguing and reading tabloids. They were all the same people, but their lovely uniformity was gone. Suddenly no two were alike. And no one's reality agreed with anyone else's.

"You idiots!" Coughlit shouted at them. "You don't have to believe this! It will all go away if you just reject it. All you have to do is think of how *improbable* it is!"

A piece of overripe farm produce hit the wall too near his head. "Bourgeois profiteer!" yelled one of the picketers.

"You knee-jerk ideologue!" a granny in a babushka snapped at the protester. A street mime followed behind her, imitating her opinionated expression.

A sickening realization came over Coughlit: the fools not only believed it, they *liked* it this way. Undisciplined. Ungrammatical. Very likely immoral. He groaned.

"Wishing for the old consensus?" a strange voice said. Coughlit looked down. Standing below his window was a lean, cynical-looking fellow with a peddler's pack.

"This is abominable!" Coughlit said.

"Well, I may have just the thing for a man like you," the peddler said with a wry, antihero grin. "Earlier this morning I came across a book. . . ."

*Henry Slesar is known mostly for his mystery fiction, and writes that he is currently embarked upon a multi-media career, with a novel, a TV soap, a radio mystery series, a thriller movie and a mystery play in the works. Not to omit short stories, here is a fantasy about tennis, a sport that requires winning two points in a row to finish a game, which can lead to some very long and punishing engagements . . .*

# Deuce

**By Henry Slesar**

**E**VEN SEVENTY FEET from the baseline, Wendell could see the musculature of desperation on Metnikov's face. His famous gap-toothed smile was now a rictus of pain and melancholy, and when Wendell's next serve whistled by him for the fourth ace of the match, the Hungarian grasped his racket head like a discus and whirled about as if preparing to hurl it into the stands. There was a ripple of uneasy laughter.

Wendell wasn't wearing a victory mouth himself. It was a thin line of frustration. He had come to Wimbledon firmly resolved not to bagel his opponents, even if it meant missing strokes deliberately, double-faulting, running the wrong way on returns. It wasn't an easy assignment he had given himself; last year's betting scandal had sharpened the perceptions of the Committee. He had practiced his Unforced Error strategy at his home court in Maine against his wife's nephew Eddie, a hotshot sixteen-year-old who saw himself as the next Michael Chang. Eddie cackled with pleasure every time he scored a point against the champion, unaware of

Wendell's concealed strategy of self-defeat.

But on the grass of Forest Hills, the clay of Roland Garros, the bright green rectangle of Centre Court at the All-England Lawn Tennis and Croquet Club, failure failed him. His body responded to each play with the inexorability of a machine. His serves thundered across every net with a swerving accuracy that was always meekly returned. The exchange that followed, punctuated by a daunting topspin, was invariably under his control. Nobody had broken his service that entire year, a sound bite the sportscasters repeated endlessly, salivating over the phrase with that love-hate engendered by invincibility.

It was match point. Metnikov let his first serve. The second was in play, and Metnikov rushed the net in a tactic that hadn't yet succeeded. When Wendell made his return, he did everything in his power to curb its velocity, to give his opponent a chance at a winner. But instinct prevailed. The ball exploded off the sweet spot of his racket and ripped past the Hungarian into the corner of the opposite court. The cry of "Out!" gave his heart a hopeful leap, but it had come from the stands, not the linesman who had seen the eruption of chalk and called the point in his favor. The umpire gave Wendell game, set, and match.

The closing ceremony was mercifully short. The television crews were well aware of Wendell's reputation as a sour apple and rarely sought postvictory interviews. He left the court with Metnikov projecting his gap-toothed grin into their cameras, making wry, sportsmanlike statements about Wendell and his prodigious skills.

When he arrived home the next afternoon, Larry, his driver, met him at the airport. He refrained from offering Wendell any congratulations, but made the mistake of keeping the car radio turned to a sports station that elected to air Metnikov's interview word for word. Wendell was too jet-lagged to protest, and as he leaned back into the fat black leather of the Mercedes, he found himself actually basking in the warm golden wash of the Hungarian's words. It had been a long time since he had been able to take pleasure in the emollient of praise, but the satisfaction didn't last. He snapped at Larry to turn off the damn radio, and, feeling a fatigue greater than any he had felt on the court, Wendell locked his fingers over a chest that suddenly seemed filled with lead, and shut his eyes.

The house had a blissful, empty feeling. Odile, his housekeeper, was nowhere in sight, and Wendell recalled some vague request she had made

to visit her sister in Finland. His man Nathan was also gone, probably sleeping off a drunk. As for Cheryl, he knew she wouldn't be there, not after their last quarrel that had featured a five-hour nosebleed. Cheryl wouldn't come back until his next jeweled extravaganza arrived by courier at her apartment door. Well, Cheryl could wait, Wendell told himself; this solitude was better than sex. He flopped into an oversized chair and breathed deep, long, and easy. The tightness in his chest was gone. He was floating in the silence.

When he heard the cough behind him, he knew it was Mr. Capri. He was no longer surprised at his unannounced appearance. Mr. Capri had an unapologetic way of walking into unlocked houses, of showing up uninvited at neighborhood parties. Wendell had been puzzled at first, but no one else in the neighborhood seemed resentful of his intrusions. In fact, Wendell sometimes suspected that no one else in his neighborhood was particularly aware of Mr. Capri's presence, to say nothing of the special relationship between them.

"I wasn't expecting you," Wendell said.

"I knew you were troubled," Mr. Capri said, lighting a black cigarette. "I thought you might like to talk."

"You mean you came to gloat," Wendell said glumly. "You knew exactly what I've been feeling. You know all about things like Hollow Victories, don't you? It's your stock-in-trade."

Mr. Capri laughed softly, and blew a column of acrid smoke that traveled all the way across the room.

"I have only one stock-in-trade," he said. "And the trades I make are without hidden clauses. No blips, no glitches, no Catch-22, 23, or any other number. I have my cunning, yes, but I also have my pride."

Wendell made a skeptical noise.

"It's simply good business," Mr. Capri said. "I value what I receive, and give good value in return. I deliver what is requested of me, without any qualifications, impediment, or, for that matter, any guarantee of satisfaction."

"But you knew what would happen to me, when I asked for . . . this."

Mr. Capri's smile was wreathed in smoke.

"A smashing serve? A powerful forehand? A faultless backhand? Yes, I knew what would happen. You'd become a champion. The best tennis player in the world. Isn't that what you asked for?"

"Yes," Wendell said bitterly. "That's what I asked for."

"You drove a hard bargain," Capri chuckled. "But since I had no other tennis player in prospect at that moment, there was no way I could refuse it. And you'll have to admit that the bargain has been kept. The fact that you're unable to savor the fruits of your victory. . . ."

Mr. Capri shrugged and put out his cigarette. The stub flickered out into infinity. Wendell stared at the empty ashtray and said:

"It's the boredom."

"Pardon?"

"I used to *enjoy* the game. I used to *live* for it! The excitement I felt at the beginning of every set. The first serve. The first return. The feel of the racket hitting the ball. And — the suspense! Where was the next shot coming from? Which side of the court? Was it going to be a lob, a smash, a drop shot? Was he going to volley, was he going to rush the net, was he going to play to that weakened backhand of mine?"

"Your former weak backhand," Mr. Capri said.

"Yes," Wendell said bitterly. "I don't have any more weaknesses. Now all the weaknesses are on the other side of the net. Now the suspense is gone. All the uncertainty. All the doubts."

"But how can there be any doubts? When you're the best in the world?"

"I didn't know what it would mean to me! I didn't know how *bored* I was going to be every time I stepped out on a court! Realizing that I couldn't lose, that I couldn't be surprised, fooled, *challenged*!"

Mr. Capri looked at his display of trophies.

"There are compensations."

"I'd give them up," Wendell said. "I'd give up every damned cup to meet *one* tennis player who could give me a decent game!"

His visitor drifted soundlessly to the breakfront. The doors opened for him, and the silver objects sparked at the touch of his incandescent fingernails. Mr. Capri smiled at his own thoughts and said:

"All right. If that's what you desire, it can be arranged."

"Are you serious?"

"Nothing gives me greater pleasure than fulfilling desires. Haven't I proved that, for millennia?"

"I don't give a damn about millennia! Just show me the man who can give me a good game!"

Capri looked out the window at Wendell's private court.



"The sun is well past the meridian. Will that trouble you?"

"What do you mean?"

"It will be twilight soon. Will that put you at a disadvantage?"

"Are you suggesting a *game*? Right now?"

"Not with me," Mr. Capri chuckled. "Dear no, no. I never engage in athletic competition; I'm strictly a spectator. I have another competitor for you, and I'll have him out on the court in just a few moments, so why don't you change?" When Wendell continued to gape at him, Mr. Capri shrugged and said: "Oh, never mind," and wagged a luminescent fingernail. Wendell looked down at himself and saw that he was wearing tennis whites.

Stripping off the cover of his racket, he felt an anticipatory excitement that had seemed lost to him forever. His visitor was already outside; he was, in fact, inside the locked enclosure of the court, confirming Wendell's suspicions that doors really needn't be opened for Mr. Capri. But he wasn't concerned with little miracles; he was interested only in the big one Capri had promised, an opponent worthy of his skills.

At first he saw no one in the opposite court, but the shadows were longest there. When someone emerged into the remaining light, he saw a man of medium height, thicker around the middle than most tennis players could afford to be, and he felt a twinge of disappointment in Mr. Capri's candidate. Most of Wendell's adversaries had looked lean and dangerous from his side of the net, but this man was almost pudgy. Despite that, he still looked familiar. There was something about the way his head sat on his thick shoulders, the heavy-lidded eyes, the glum line of his mouth. Wendell watched the man twirl the racket in his hands as he stepped into the backcourt in a bandy-legged stance, apparently waiting for Wendell to make the first serve. He looked at Mr. Capri, who produced a ball out of nowhere and tossed it to him. Wendell promptly drove it into the corner of the service box, with just enough swerve to put it out of his opponent's reach. In fact, the man didn't even try. He just stood there, gripping his racket with both hands, and grinned a familiar grin.

"Fifteen-love," the umpire said. Umpire? Yes, there was one, sitting in the tall chair in midcourt. He was only a silhouette in the twilight, a dark shape that resembled Mr. Capri himself, although Mr. Capri was leaning against the wire mesh of the enclosure with his arms folded, looking pleased with the proceedings. Wendell wondered why, and served again.

This time his opponent seemed to know exactly where the ball was going, and met it with a forehand that surprised Wendell with its heavy topspin. He barely managed to return it with a high lob that should have dropped behind the other player, except that he seemed to anticipate it soon enough to drop back into perfect position for a passing shot that Wendell thought he had patented years ago. He didn't feel chagrined, not even when he heard the crack of Mr. Capri's palms as he applauded the point. Wendell was exultant. It might have been only a fluke; he might have taken his opponent too lightly; but there was no doubt that the score was fifteen all.

He took his time on the next serve, and it came storming back at him with unnerving speed. He stepped in and volleyed the ball just over the net, landing it fifteen feet in front of his opponent. Wendell was sure he had caught his man flat-footed, but his opponent's bandy legs had more spring in them than seemed possible. He caught up with the ball and dropped it neatly over the net before Wendell could reach it. His grin of triumph was more tantalizing than ever. Where had he seen that face before?

The next point was harder fought. They drove the ball back and forth between them a dozen times before it struck a bad patch on the composition — Wendell had asked Nathan a dozen times to get it fixed — and the point went in Wendell's favor. He accepted it without apology; he didn't feel in the mood for sportsmanship. He wanted the score to be thirty all, and it was.

Then luck ran the other way. He was doing fine; he was beginning to relax now, beginning to anticipate the strokes coming at him, doing his mind-reading act as well or better than he had ever done. But he wasn't accustomed to the hour. The sun did a starburst through the evergreens and blinded him for one strategic moment, and his shot went long. At least, he thought it was long, until he heard the umpire calling the advantage in Wendell's favor. He looked over at Mr. Capri, who smiled broadly, a smile that seemed to split his well-tanned face in two. He must have seen the umpire's error, Wendell thought; he was gloating over his acceptance of it. He whirled and shouted at the man in the tall chair.

"My ball was out. The point isn't mine!"

"Advantage, Mr. Wendell," the umpire said.

He had done his best. What more could he do? He gave his opponent a

helpless shrug, and he saw him shrug back, moving his head on his thick shoulders the same way Wendell moved his own head. His mouth was fixed in the same glum line that Wendell had seen in his shaving mirror. He walked back to the baseline with the same rolling, bandy-legged gait that Wendell had seen in videotapes of his games. Now he knew why his opponent was so familiar. Now he understood why his mind-reading act was working so well. Now he understood why the Advantage was "Mr. Wendell's." He was playing against himself.

Wendell looked for Mr. Capri, who had transported himself to the other side of the court.

"What is this? What the hell is going on?"

"Why, a game," Mr. Capri said. "A very good game. I haven't enjoyed a match like this since the days of Mr. Budge."

"This isn't a match! I'm playing myself!"

"You're playing the best tennis player in the world, Wendell. What more could you ask in the way of a challenge?"

"But I'm the best tennis player in the world!"

"And you wanted to play someone worthy of your game. Who better than yourself?"

In the backcourt, his mirror image was poised for the next serve, twirling the racket in both hands, just as Wendell always did.

"Serve the ball," Mr. Capri said. "Don't you want to know if you can beat yourself? Serve the ball, my friend; you're keeping yourself waiting. And as we all know, you're a very impatient man."

Wendell swore, and flipped the ball into the air. He put every ounce of strength, skill, and cunning into the serve, and even though Wendell Two apparently knew his intention, he could do no more than scoop the ball off the ground and give Wendell an easy slam to the opposite court.

"Deuce," the umpire said.

He was equally forceful on the next serve, but Wendell Two was better prepared. This time the return was long, sending Wendell running cross-court to catch up with it. They went back and forth for thirty strokes until Wendell's heart was thundering in his chest, and it was sheer fatigue that made him falter and deliver the point to his other self.

Wendell fought back. His whole body was throbbing with exhaustion, but he assumed that his counterpart was experiencing the same weariness. He decided to rush the net, and suddenly realized that Wendell Two

had the same notion. He dropped back just in time to nail the ball hard, and had the satisfaction of driving it out of reach.

"Deuce," the umpire said.

The next point went to Wendell, but he couldn't hold the lead. The other Wendell was reading his mind, too, and when Wendell attempted to fool him with a soft backhand, Wendell Two responded with a low volley right off his shoelaces.

"Deuce," the umpire said.

Two hours passed, but the light hadn't changed. Only Mr. Capri had moved, from one end of the court to the other, arms folded against his chest, the perfect Spectator, showing no favorites.

"Deuce," the umpire said, for the twenty-eighth time.

"Capri!" Wendell screamed. "This game is ridiculous! He knows every move I'm going to make! I know every move *he's* going to make!"

"Deuce," the umpire said.

"You're both marvelous," Mr. Capri said. "You're both the best tennis players in the world. What else do you expect?"

"Deuce," the umpire said, for the ninety-fifth time.

"Capri! You've made your point. I can't beat myself. He can't beat me! Let's call it off!"

"Win two points in a row," Mr. Capri advised. "That's all you have to do."

"Deuce," the umpire said, for the 150th time.

"It's enough," Wendell said. "I'm calling this a draw!"

"Deuce," the umpire said.

"Did you hear me, Capri?"

Mr. Capri remained silent. He was a silhouette now, too, but a silent one. The umpire wasn't silent.

"Deuce," he said.

"I'm quitting," Wendell screamed, throwing down his racket. It bounced back into his hand, his fingers grasping the handle with a perfect Eastern forehand grip without his volition. He ran to the gate, but it was no longer there. The screen around the court was solid and unbroken. Mr. Capri was laughing softly, and the umpire was speaking.

"Resume play, gentlemen," he said. "The score is deuce."

Wendell tried to hold his arms at his sides, but the ball in his left hand came to life on its own and forced him to fling it in the air. Then his

racket responded by sending a thunderous ace past Wendell Two. His hopes raised once again, he tried for a second ace and suffered a double fault instead.

"Deuce," the umpire said.

"Oh my God," Wendell sobbed. "This is horrible. This is a nightmare! I'd rather be in Hell!"

"Ah," Mr. Capri said.

Then he was gone, leaving Wendell to his opponent and the umpire. On his way out, he tipped his hat to the limousine where Wendell sat slumped against the fat black leather cushions, his racket hand lying peacefully across his chest.

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# Better Morphosis

**By Brian W. Aldiss**

**L**OOK, I'LL PUT it to you this way, in the hope you'll understand. Literature's O.K., but what really grabs me is *scuttling*, right? Like, I mean, scuttling — here and there, anywhere I feel like.

Which is to say that directions are better than sentences. Any direction better than any sentence. Scuttle scuttle bliss. Bliss.

Me and all my friends had been having this really great scuttle. O.K.? A megascuttle, all round this apartment building in Prague. A moment's inattention, and what happens?

— Jesus, I wake up and find myself transformed. Like lying in a BED, transformed into — Look, I have to tell you. Into this huge, pale thing. Well — shit, into Franz Kafka. KAFKA. (That's his name. They have NAMES.)

Where's everyone gone? Nowhere. I don't know. I don't know; I never had a single thought before. Suddenly I'm Franz Kafka, lying there in that bed and thinking fit to bust. THINKING. Yuk. . . .

All I'm thinking is just awful. I mean, I'm a fan of oily rags and maybe mildew. A bit of damp in a bad corner, and I'm happy. Anything. Grease, know what I mean? But not for fuck's sake *thinking*.

Honest, I didn't even know thinking had been invented.

But there I was, and thinking — I may as well say it — thinking bad thoughts about my father. How he was so oppressive; how he was so strong and hairy and his voice was so loud; and when he washed in the morning, he made splashes in the washbasin and blew his nose into the water, both nostrils at once into the soapy water and. . . .

Well, look, Christ, never mind thinking; like, the whole concept of FATHER was alien. Come on, down there in the basement, we just spawned, remember. We just were. One moment, nothing. Eggs. Next moment, up and running. Dozens of us, *scuttling*. You know? Scuttling, having real fun, mobile as all get-out. Little legs going like the clappers.

So I felt down the bed. TWO LEGS.

Jesuś. What a nightmare!

Just TWO LEGS.

Where had all the others gone? Pity's sake, what the hell was I supposed to do with two *legs*? You think you can get a good scuttle going with two legs? Forget it!

Two legs. I can't get over it. Between the legs, some hair of a sort, and this stupid flabby thing. I feel it with my mandibles —

Mandibles — Yow, what have the bastards done to me? I have lost my shagging mandibles. No mandibles. Just these feeble hand things, all pale and pulpy and —

— and I pull at it, and it — sort of gets stiff —

— come on, I must be off my tiny thorax —

— it gives out with some mess that I might normally eat, but now it sort of blows away, and there's a whole muddle of emotion in my . . . MIND I cannot cope with. Look, reproduction should not require such an upheaval.

But almost immediately, Kafka — me, dammit — begins *thinking* again, and I get out of bed. No kidding. I. Get. Out. Of. BED.

The horror of it! Those two awful long white legs, not neat at all, covered with a layer of flesh . . . I move them, and instead of having a good scuttle across the floor, I stand up on these legs in quite the wrong attitude. And I walk, balancing on these two stilts, high above the floor.

Frightened? Sonny, I was scared out of my wits. Scared shitless, and that's the truth.

There's a chest across the room, of the sort I used to scuttle under. Instead, I pick up the clock on it, and I see it is half-past six.

You follow me? I'm reading a clock, and I'm thinking it's time to be going to work. Me, who never read a clock or went to work in my life. Look, I've spent days in basements and places like that, but for fun. FUN. Work? I'd never heard of work till that moment, and there I was thinking of myself dressed in trousers and sitting at a desk with a ledger. Sitting. Christ, I ask myself in a panic, how the shagging hell do you SIT? But somehow at the same time, I am washing myself — I'm *trying to get filth off myself*.

It's incredible. I thought soap was something you ate, yet here I am, calling myself Franz and rubbing this stuff round my neck. Not at all liking filth. Only yesterday, it used to be a way of life.

And there's Father — O.K., don't say it; I'm only telling you — there's FATHER, banging on the door with a fist and calling, "Franz, Franz, what's the matter with you?"

You think that's odd? Then dig this: I ANSWER.

Yes, I make this noise kind of thing in my throat, and I say, "I'm just ready." That's what I say. I have never spoken one word before — fine, many a scuttle here and there, but never a WORD. And there I stand, bold as brass, if shaking a bit, saying, "I'm just ready." Maybe I'm growing stronger.

And the nightmare goes on. I can't repeat it. You'd think I was round the twist if I told you. I mean, like sitting at a breakfast table with a FAMILY. Not thousands, just four of them, each with two of these legs I've been telling you about. You think I looked funny? Up yours.

I shiver to think of that breakfast. Those people. . . . Not one of them realized I was not human. They looked at me, and they pretend I'm someone called Franz Kafka. Maybe they really thought I was Franz Kafka. People who can't scuttle just can't be trusted.

Standing, I sample a bowl of oatmeal.

So after this meal, when I find I'm stuffing foul, nonrancid things down my throat — without bad effects — I try a quick scuttle round the room. Can I get up the wall? Can I scuttle across the ceiling?

What, with two legs?



Forget it.

I fall flat on my bonce and break a chair. The other three people all run around screaming — quite fast, admittedly, but you would hardly call it scuttling. Scuttling needs technique. I don't have to tell you.

My idea is to get out of the house. So *I put on a coat*. Don't laugh. I'm telling you, I put on a coat. In this nightmare, everyone puts on coats when they go out. Maybe I'll see the funny side of it one day.

On the way to work, we bump into Milena. That's a female of the species.

"Hello, Fritz," she says. "Thanks for your letter. How are you?"

This is meant to be the sexy bit, but don't get excited, chums. Fritz — me — he goes over all shy. Can't even look at her properly. Stutters. In his mind thinks of simply incredible things he would do to her, involving getting her on a couch and going into unrealistic positions without clothes, plus jerky movements.

Of course, EGGS are at the bottom of it all. That at least I can understand. But does he get on with the egg-laying? Do they spawn?

Not a bit of it. They just stand there in the street.

I say, "I'm not too good this morning. The question of my health is a difficult one, which I shall have to answer at length in a letter, if you can find the patience to read it. I wouldn't hold it against you if you didn't read it. Whatever you think I look like does not necessarily represent the truth."

This is bizarre. She replies, "I liked the flowers. They now stand in my room. They bring the daylight into my room. Perhaps you will come to see them, visit my room."

And I say, "No, you are not listening." And he's thinking of her ovipositor. I can hear his stomach rumbling, and long to escape among the cobbles underfoot, where lovely horse droppings lie. I could scuttle scuttle scuttle like fury among them.

"I keep imagining this morning that I have — please believe me, Milena, because when we're married, you will have to put up with a lot of this — but I keep imagining that I have lots of little crisp sepia legs."

"What color?" she asks, startled.

"Sepia. A sort of light, faded brown, perhaps with a touch of mahogany. Anyhow, I keep thinking I'm a common household pest. Horseshit!"

"What?" Milena backs away in disgust. But this word is mine. I have

managed to squeeze out that one phrase, "horseshit." Much better than conversation.

Kafka and Milena take fright and run off in different directions. Looks like egg-laying has taken a beating.

Somehow I get to my workplace. All sorts of men there — I'm terrified, of course — in big boots. I keep thinking I'm going to get stamped on, even when the clots are calling me Franz.

I sit down at this desk with a ledger. It isn't as difficult as I'd thought, because I have found how to . . . look, I'm not explaining all this for fun . . . I have found how to *bend in the middle*.

Down I sit, and what do I do?

I shouldn't be doing this. I know I shouldn't be doing this, but still I do it. (Yes, right, figure that one out. . . .)

I start writing *The fucking Trial*.

In a notebook.

In longhand.

Like there was no tomorrow.

Scared of being caught.

Don't tell me it doesn't make sense. There's that thing, my HAND, utterly repulsive, and it is moving, making tiny scrawls on the paper. Scrawls I might enjoy, on their own, but unfortunately, they are not just mere scuttles — oh no, it seems I'm in some kind of a scuttle-free universe — these scuttles spell something. Spell. SPELL. Don't ask me to explain; just take it that's what they do, see?

"K. was informed by telephone that next Sunday a short inquiry into his case would take place."

That's what Kafka — that's what *I* wrote. It didn't make sense to me. I'm no fool, but that sentence wouldn't make sense to any insect. Telephone? Sunday? Yet he — I — seemed pleased enough, and kept dribbling these words across the page.

What is all this? I asked him. Who the hell are you?

No answer, naturally.

But he did then stop this scrawling, which was a relief. He rested his head in his hands. He closed his eyes. That is, sorry, I mean I rested my head in my hands. I closed my eyes.

Bad feelings came over me.

An inspector approached, walking heavily between the clerks' desks.

When he got to Kafka's desk, he spoke.

"Get on with your work."

I looked up. At last I found my voice.

"Please help me," I chirped. "I'm an innocent cockroach. Sir."

Kafka — I — was taken before the supervisor. I repeated my sentence. By now I could say it more loudly. My two pale, flabby little paws were waving, as if in protest.

Eventually a doctor was called. DOCTOR. It seems these humans are often — unwell — a kind of failure even to nonscuttle. He examined me, and was not surprised to find I had only two legs, though of course I squealed about it.

So here I am in this damp cell now. A considerable relief, let me tell you.

There are cockroaches here, thank God. They scuttle over the floor. Scuttle scuttle scuttle. Great. Sense at last.

I lie on the floor so that they can scuttle over me.

"Don't. Please," says Kafka. Me.

"Sod off," I say.

Scuttle scuttle scuttle.

Happiness.



Ben Bova has written several F&SF stories about Sam Gunn, most recently "A Can of Worms," (November 1989). Sam is one colorful guy, a former NASA astronaut turned entrepreneur, who here becomes involved in an experimental mission to remove orbital junk. . .

# VACUUM CLEANER

By Ben Bova

C

ALL ME SPENCE," HE SAID, dropping his lanky, sweaty frame onto the bench beside

her.

In spite herself, the reporter felt her heart skip a couple of beats. She was breathless, and not merely from the exertion of a hard game of low-gee tennis.

Spencer Johansen was tall and lean, with the flat midsection and sharp reflexes that come only from constant exercise. His eyes were sky blue, his face handsome in a rugged, clean-cut, honest way. When he smiled, as he was doing now, he looked almost boyish despite his silver-gray hair.

The smile was *deadly*. The reporter had to remind herself that this man was the subject of an interview, not an object of desire. She was here to get a story out of him, and he was refusing to talk.

"Why Sam?" he asked, still smiling. But those clear blue eyes were wary, guarded.

They were both still puffing from their punishing game. On the huge low-gee court, safely behind a shatterproof transparent wall, the next two players were warming up with long, slow low-gravity lobs.

"Solar Network wants to do his biography," she replied, surreptitiously pressing the microswitch that activated the recorder built into her belt buckle. He might say something worth listening to, she told herself.

"Solar, huh?" Spencer Johansen huffed.

"Well . . . it's really me," the reporter confessed. "I covered the story of his death, and — well, I've become fascinated by the man. *I* want to get Solar to do a special on him."

The captain looked down at her. Sitting beside him, she looked small, almost elfin, in a form-fitting sleeveless gym top and shorts of pastel yellow.

"You're not the first woman to be fascinated by ol' Sam," he muttered. His own gym outfit was nothing more than an ancient T-shirt and faded denim cutoffs.

"Couldn't you tell me *something* about him? Just some personal reminiscences?"

"We made a deal, you and me."

She sighed heavily. "I know. And I lost."

His smile returned. "Yeah, but you played a helluva game. Never played in low-gee before?"

"Never," she swore. "This is my first time to a Lagrange habitat."

He seemed to look at her from a new perspective. The smile widened. "Come on: hit the showers and put on your drinking clothes."

"You'll give me the interview? Even though I lost the game?"

"You're too pretty to say no to. Besides, you played a damned good game. A couple days up here, and you'll be beating me."

Back in the old NASA days, Sam Gunn and I were buddies — said Johansen to the reporter over a pair of L-5 "libration libations."

They had height limitations for astronauts back then, even for the old shuttle. I just barely made it under the top limit. Little Sam just barely made it past the low end. Everybody used to call us Mutt and Jeff. In fact, Sam himself called me Mutt most of the time.

I never figured out exactly why it was, but I *liked* the little so-and-so. Maybe it's because he was always the underdog, the little guy in trouble

with the big boys. Although I've got to admit that most of the time, Sam started the trouble himself. I'm no angel; I've raised as much hell as the next guy, I guess. But Sam — he was unique. A real loose cannon. If there were ten ways to do something, and the agency regulations approved of only two of them, Sam would find an eleventh way and drive everybody nuts. But he'd get the job done, no matter how many mission controllers turned blue.

He quit the agency, of course. Too many rules. I've got to confess that flying for the agency in those days was a lot like working for a bus line. If those desk jockeys in Washington could've used robots instead of human astronauts, they would've jumped at the chance. All they wanted was for us to follow orders and fill out their damned paperwork.

Sam was itching to be his own boss. "There's m-o-n-e-y to be made out there," he'd spell out for me. "Billions and billions," he'd say in his Carl Sagan voice.

He got involved in this and that while I stayed in the agency and tried to make the best of it despite the bureaucrats. Maybe you heard about the tourist deal he got involved in. And the attempt to divert an asteroid into Earth orbit for mining its ores.

Well, meantime, all I really wanted was to be able to fly. That's what I love. And back in those days, if you wanted to fly, you either worked for the agency or you tried to get a job overseas. I just couldn't see myself sitting behind a desk or working for the French or the Japs.

Then, one fine day, Sam calls me up.

"Pack your bags and open a Swiss bank account," he says.

Even over the phone — we didn't have videophones back then — I could hear how excited he was. I didn't do any packing, but I agreed to meet him for a drink. The Cape was just starting to boom again, what with commercial launches (unmanned, in those days) and the shuttles ferrying people to space stations and all that. I had no intentions of moving; I had plenty of flight time staring me in the face, even if it was nothing more than bus driving.

Sam was usually the center of attention wherever he went. You know: wisecracking with the waitresses, buying drinks for everybody, buzzing all over the bar like a bee with a rocket where his stinger ought to be. But that afternoon he was just sitting quietly in a corner booth, nursing a flat beer.

Soon as I slide into the booth, Sam starts in, *bam*, with no preliminaries. "How'd you like to be a junk collector?"

"Huh?"

Jabbing a thumb toward the ceiling, he says, "You know how many pieces of junk are floating around in low orbit? Thousands! Millions!"

He's talking in a kind of low voice, like he doesn't want anybody to hear him.

I said back to him, "Tell me about it. On my last mission, the damned canopy window got starved by a stray piece of crap. If it'd been any bigger. . . ."

There truly were thousands of pieces of debris floating in orbit around the Earth back then. All kinds of junk: discarded equipment, flakes of paint, pieces of rocket motors, chunks of crap of all kinds. Legend had it that still floating around out there was an old Hasselblad camera that Mike Collins had fumbled away during the *Gemini 10* mission.

Sam hunched across the table, making a shushing gesture with both his hands. "That's just it! Somebody's gonna make a fuckin' fortune cleaning up that orbiting junk, getting rid of it, making those low orbits safe to fly in."

I gave him a sidelong look. Sam was trying to keep his expression serious, but a grin was worming its way out. His face always reminded me of a leprechaun: round, freckled, wiry red hair, the disposition of an imp who had never grown up.

"To say nothing," he damn near whispered, "of what they'll pay to remove defunct commsats from geosynchronous orbit."

He didn't really say "geosynchronous orbit"; he called it "GEO" like we all do. "LEO" is low Earth orbit. GEO is 22,300 miles up, over the equator. That's where all the communications satellites were. We damned near got into a shooting war with half a dozen equatorial nations in South America and Africa over GEO rights — but that's a different story.

"Who's going to pay you to collect junk?" I asked. Damned if my voice didn't come out as low as his.

Sam looked very pleased with himself. "Our dear old Uncle Sam, at first. Then the fat-cat corporations."

Turns out that Sam had a friend who worked in the Department of Commerce, of all places, up in Washington. I got the impression that the friend was not a female, which surprised me. Seemed that the friend was a

Commerce Department bureaucrat, of all things. I just couldn't picture Sam being chummy with a desk jockey.

Anyway, Commerce had just signed off on an agreement with the space agency to provide funding for removing junk from orbit. Like all government programs, there was to be a series of experimental missions before anything else happened. What the government calls a "feasibility study." At least two competing contractors would be funded for the feasibility study.

The winner of the competition, Sam told me, would get an exclusive contract to remove debris and other junk from LEO on an ongoing basis.

"They've gotta do something to protect the space station," Sam said.

"Freedom?"

He bobbed his head up and down. "Sooner or later she's gonna get hit by something big enough to cause real damage."

"The station's already been dinged here and there. Little stuff, but some of it causes damage. They've got guys going EVA almost every day for inspection and repair."

"And the corporations who own the commsats are going to be watching this competition very closely," Sam went on, grinning from ear to ear.

I knew that GEO was getting so crowded that the International Telecommunications Authority had put a moratorium on launching new commsats. The communications companies were being allowed to replace only old satellites that had gone dead. They were howling about how their industry was being stifled.

"How much do you think Turner or Toshiba would pay to have dead commsats removed from orbit so new ones can be spotted in the best locations?" Sam asked.

"Zillions," I said.

"At least!"

I thought it over for all of ten seconds. "Why me?" I asked Sam. I mean, we had been buddies, but not all that close.

"You wanna fly, don'tcha? Handling an OMV, going after stray pieces of junk — that's going to call for *real* flying!"

An OMV was an orbital maneuvering vehicle: sort of a little sports car built to zip around from the space station to other satellites; never comes back to Earth. Compared to driving the space shuttle, flying an OMV would be like racing at Le Mans.



I managed to keep a grip on my enthusiasm, though. Sam wasn't acting out of altruism. Not without some other reason to go along with it. I just sat there sipping at my beer and saying nothing.

He couldn't keep quiet for long. "Besides," he finally burst out, "I need somebody with a good reputation to front the organization. If those goons in Washington see my name on top of our proposal, they'll send it to the Marianas Trench and deep-six it."

That made sense. Washington was full of bureaucrats who'd love to see Sam mashed into corn fritters. Except, apparently, for his one friend at Commerce.

"You want me to be president of the company?" I asked.

He nodded. The corners of his mouth tightened, but he nodded.

I let my enthusiasm show a little. I grinned and stuck my hand out over the table. Sam grinned back, and we shook hands between the beer bottles.

But I had a problem. I would have to quit the agency. I couldn't be a government employee — even on long-term leave — and work for a private company. Washington's ethics rules were very specific about that. Oh yeah, Sam formed a private company to tackle the job. Very private: he owned it all. He called it VCI. That stood for *Vacuum Cleaners, Inc.* Cute.

I solved my problem with a single night's sleepless tussling. The next morning I resigned from the agency.

If things didn't work out with Sam, I could always re-up with the agency. They'd take me back, I felt sure, although all my seniority and pension would be gone. What the hell. It was only money. Most of my salary went to my first three wives, anyway.

THE REPORTER nearly dropped the tall, frosty glass from which she had been sipping.

"Your first three wives?" she gulped.

Johansen inched back in the fabric-covered slingchair. He looked flustered, embarrassed. "Uh, I've been married six times," he said in a low, fumbling voice.

"Six?"

He seemed to be mentally counting. Then he nodded. "Yeah, six. Funny thing, Sam always had the reputation for chasing women. But somehow I always wound up getting married."

It took an effort of will to pull her eyes away from Johansen and gaze out at the scenery. The patio on which they sat hung out over the curving landscape of the gigantic habitat. The reporter saw gentle grassy hills with a lazy stream meandering among them, in the distance a little village that looked like a scene for a Christmas card, except there was no snow. Farther still, there were farms, miles off, like a checkerboard of different shades of green. Her eyes followed the curve of this vast structure, up and up, woods and fields and more villages overhead, all the way around until her gaze settled on Johansen's relaxed, smiling face once again.

"It's quite a sight, isn't it?" he said. "A complete self-sufficient ecology, man-made, inside a ten-mile cylinder."

"Quite a sight," she murmured.

Putting the glass down on the little cocktail table between them, she forced herself to return to the subject at hand. "You were talking about leaving the agency to go to work for Sam."

Oh yeah — Johansen replied, deftly ordering a new round of drinks with a hand signal to their robot waiter.

Sam had two problems to wrestle with: how to raise the money to make VCI more than a bundle of paper, and how to get the government to award us one of the two contracts for the experimental phase of the junk-removal program.

Sam raised the money, just barely. He got most of it from a banker in Salt Lake City who had a daughter that needed marrying. And did *that* cause trouble later on!

But I don't want to get ahead of myself.

We rented a dinky office on the second floor of a shopping mall, over a women's swimwear shop. Sam spent more time downstairs than he did in the office. At least, when the stores were open. Nights, he worked with me writing our proposal. He seemed to work better after the sun went down. Me, I worked night and day. Writing a proposal was not easy for me.

Sam went out and hired a wagonload of big-time consultants from academia and industry, guys with fancy degrees and lists of publications longer than a gorilla's arm.

"Gee, Sam, how can we afford all these fancy pedigrees?" I asked him.

He just grinned. "All we need 'em for is to put their names on our letterhead and their résumés in our proposals. That doesn't cost a damned

thing. They get paid only when we ask them to consult with us, and we don't have to ask 'em a thing once we win the contract."

That sounded a little shady to me, but Sam insisted our proposal needed some class, and I had to agree with him there. Our only real employees were two bright kids who were still students at Texas A&M, and four local technicians who were part-time until we got the government contract. We leased or borrowed every piece of office equipment. Most of the software our Texas kids invented for us or pirated from elsewhere. We really needed that impressive list of consultants.

Those two youngsters from Texas had come up with a great idea for removing debris from orbit. At least, it looked like a great idea to me. On paper. I knew enough engineering to get by, but these kids were really sharp.

"How'd you find them?" I asked Sam.

"They wrote a paper about their idea," he said. "Published it in an aerospace journal. Their professor put his name on it, just like they all do, but I found those two kids who did the real work and put 'em on the payroll."

Well, we finished writing the proposal, and faxed it up to Washington just under the deadline.

Then we waited. For weeks. Months.

I got nervous as hell. Sam was as cool as liquid hydrogen. "Relax, Mutt," he told me a thousand times during those months. "It's in the bag." And he would smile a crooked little smile.

So there I sat, behind a rented desk in a dinky office, while the days ticked by and our money ran out. I was president of a company that was so close to bankruptcy, I was starting to think about moonlighting as a spare pilot for Federal Express.

Then we got the letter from Washington.

We were invited to send a representative to a meeting in Washington to defend our proposal against a panel of government experts. The letter said that there were four proposals being considered. The four companies were Rockledge International, Lockwood Industries. Texas Aerospace, and VCI — us.

"Holy Christmas!" I said when I read the letter. "Look at who the competition is: three of the biggest aerospace corporations in the world!"

Sam made like a Buddha. He folded his hands over his little belly and smiled enigmatically.

"Don't worry about it, Mutt," he said for the thousand-and-first time. "It's in the bag. If there's any real problem, I've got four magic words that will take care of everything."

"What did you say?"

"Four magic words," Sam repeated.

I did not share his confidence. In fact, I thought he had gone a little nutty under the pressure.

I was nervous as a kid on his first solo as I flew to Washington on the appointed day. I had spent every day and night since we'd received that letter cramming every bit of technical and financial data into my thick skull. We had even flown over to College Station for a week, where our two bright Texas A&M youngsters stuffed all their info into me directly.

I was surprised to see that one of Sam's two young geniuses was female. Sort of round and chubby, but she had huge, dark, soulful Mediterranean eyes.

Anyway, there I was, stepping into an office in some big government building in Washington, my head bursting with facts and figures. As offices go, it wasn't much bigger or better furnished than our own little place in Florida.

I was the last to arrive. Representatives of our three competitors were already sitting side by side on one end of the long table that took up most of the room. They sure looked well-off, knowledgeable, slick, and powerful. I felt like an intruder, an outsider, well beyond my depth.

But Sam had given me those four magic words of his to use in an emergency, and I whispered them to myself as I took the last chair, at the foot of the table.

Sitting at the head of the table was a guy from the agency I had met once, when he had visited the Cape for the official ceremonies when we opened space station Freedom. On his right-hand side sat three more Government types: old suits, gray hair or none at all, kind of pasty faces from being behind desks all their lives.

The three industry reps were dressed in much better suits: not flashy, but obviously expensive. Two of them were so young their hair was still all dark. The third, from Rockledge International, was more my own age. His hair was kind of salt-and-pepper; looked like he spent plenty on haircuts, too. And tanning parlors. He was the only one who smiled at me as I sat down and introduced myself. It was the kind of smile a shark gives.

"We're glad you could make it, Mr. Johansen," said the guy at the head of the table. He introduced himself as Edgar Zane. Thin hair, thin lips, thin nose, and thin wire frames on his bifocals. But his face looked round and bloated, too big for his features.

Zane introduced everybody else around the table. The Government types were from the Department of Transportation, the Environmental Protection Agency, and the Department of Commerce.

Commerce? Was this bald, sallow-faced, cranky-looking old scarecrow Sam's pigeon in the Commerce Department? He sure didn't give me any reason to think so. He squinted at me like an undertaker taking measurements.

"Before we begin," said the Rockledge guy, Pierre D'Argent, "I'd like to ask Mr. Johansen for a clarification."

Zane peered at him through the top half of his bifocals. "You're here to answer questions, Mr. D'Argent, not ask them."

He beamed a smile toward the head of the table. "Yes, I understand that. But I believe we all have the right to know exactly whom we are dealing with here."

He turned his handsome face to me. "VCI is a new firm in this field. I think we'd all like to know a bit more about your company's financial backing and management structure."

I knew right away what he wanted. He wanted me to tell them all that Sam Gunn was the man behind VCI.

I gave him the standard spiel that Sam had drummed into me, like a POW reciting name, rank, and serial number. VCI is a privately held company. I am the president and chief executive officer. While our staff is small and elite, we have an extensive list of consultants who can provide world-class technical, management and financial expertise on every aspect of our program. VCI's principal financial backer is the First Federal Bank of Utah. Our accounting firm is Robb and Steele, of Orlando, Florida.

D'Argent smiled at me with all his teeth. "And what role does Mr. Gunn play in VCI?"

I looked up the table. Zane was scowling at me through his wire-frame glasses. He knew Sam; that was for sure.

Never lie to the government, Sam had instructed me, when there's a good chance that they'll catch you at it.

"Mr. Gunn is the founder of VCI," I said.

"His name doesn't appear in your proposal," Zane practically snarled.

"Yes, it does, sir," I corrected him. "On page 463." That was back in the boilerplate section, where we were required to put in a history of the company.

"We have no intention to actively involve him in the day-to-day work," I said. It was pretty close to the truth.

Zane looked as if he didn't believe a word of it. I figured we had been shot down before we even got off the runway. D'Argent gave me another one of his shark smiles, looking pleased with himself.

But the bald scarecrow from Commerce cleared his throat and rasped, "Are we here to discuss the competing proposals or to conduct a witch-hunt? Sounds to me like a cult of personality."

Zane huffed through his pinched nose and started the official proceedings.

The one thing we had going for us was our technical approach. I quickly saw that all three of our giant corporate competitors had submitted pretty much the same proposal: the old Nerf-ball idea. You know: launch a balloon and blow it up to full size once it's in orbit. The balloon's surface is sort of semisticky. As it runs into debris in space, it bounces them into orbits that spin down into the atmosphere, where the junk burns up. The idea had been around for decades. It was simple and would probably work — except for sizable chunks of debris, like discarded pieces of rocket stages or hand tools that got away.

It also required a lot of launches, because the Nerf ball itself got slowed down enough after a few orbits to come spiraling back into the atmosphere. The Nerfs could be launched with small unmanned boosters pretty cheaply, or ride piggyback on bigger boosters. They could even be tucked into spare corners of shuttle payload bays and injected into orbit by the shuttle crews.

Our proposal was different. See, the junk hanging around up there picked up an electrical charge after a couple of orbits. From electrons in the solar wind, if I remember correctly. Sam's idea was to set up a big electromagnetic bumper on the front end of space station Freedom and deflect the debris with it, neatly clearing out the orbit that the station was flying through. Kind of like the cowcatcher on the front of an old locomotive; only, instead of being made of steel, our bumper was an invisible magnetic field that stretched hundreds of meters into space out in front of the station.

"The equipment we need is small enough to fit into a shuttle's student-experiment canister," I explained. "The bumper itself is nothing more than an extended magnetic field, generated by a superconducting coil that would be mounted on the forward-facing side of the space station."

"The costs . . .," Zane started to mutter.

"The program will cost less than a continuing series of Nerf-ball launches," I said before he could turn to the relevant pages in our proposal. "And the elegant thing is that, since this program's primary aim is to keep Freedom's orbit clear of debris, we will be doing exactly that."

"And nothing else," D'Argent sniped.

I smiled at him for a change. "Once Freedom's orbit has been cleared, we could always detach the equipment, mount it in an orbital maneuvering vehicle, and clean out other orbits. The equipment is very portable, yet durable and long-lasting."

We went into some really heavy-duty arguing, right through lunch and all through the long afternoon.

"I've got to admit," Zane finally said as it started to get dark outside, "that VCI's technical proposal is extremely interesting."

"But can a newly hatched company be expected to carry through?" D'Argent asked. "I mean, after all, they have no track record, no real financial strength. Do you really trust Sam Gunn, of all people, to get the job done?"

I held on to my temper. Partly because Sam had drilled it into me that they'd drop our proposal if they thought I was as flaky as he was. But mostly because I heard Sam's four magic words.

"Small-business set-aside."

They were spoken by the cadaver from Commerce. Everything stopped. The room fell so quiet I could hear the going-home traffic from out on the streets below.

"This program has a small-business set-aside provision," the Commerce scarecrow said, his voice crackling as if it were coming over a radio link from Mars. "VCI is the only small-business firm to submit a proposal. Therefore, if their proposal is technically sound — which we all agree that it is — and financially in line, we have no choice but to award them one of the two contracts."

D'Argent's handsome chin dropped to his expensive rep tie. Zane glared at his crony from Commerce. The others muttered and mumbled to

themselves. But there was no way around it. Decades earlier the Congress had set up a system so that little companies could compete against the big guys. Sam had found that old government provision and used it.

Later, when I told Sam how things had gone, he whooped and danced on my desktop. Nothing made him happier than using the government's own red tape to his advantage.

**W**AIT A minute," the reporter said, putting down the tall, cool glass she had been holding for so long that its contents had melted down to ice water.

Johansen, who had hardly touched his own drink, eyed her quizzically.

"Was that old man Sam's contact in the Commerce Department, after all? Had he tipped Sam off about the small-business set-aside?"

I thought the same thing — Johansen answered — but the guy slipped out of the meeting room like a ghost disappearing into thin air. And when I asked Sam about it, back in Florida, he just got quiet and evasive. There was something soing on, but I couldn't figure out what it was. Not until a lot later.

Anyway, about six weeks afterward, we got the official notification that we had won one of the two contracts for what the government called "The Orbital-Debris-Removal Test and Evaluation Program, Phase I." The other contract went to Rockledge.

"We're in!" Sam yelled. "We did it!"

We partied all that weekend. Sam invited everybody from the swimwear shop downstairs, for starters, and pretty soon it seemed like the whole shopping mall was jammed into our little office. Sometime during the weekend, our two geniuses from Texas A&M showed up and joined the fun.

The hangover was monumental, but the party was worth it. Then the work began.

I saw trouble right away. The kids from Texas were really brilliant about superconductors and magnetic bumpers, but they were emotionally about on the level of junior high school.

The girl — uh, woman — her name was Melinda Cardenas. She was kind of cute, although pretty badly overweight. Could have been a real



beauty, I guess, if she could stay away from sweets and junk food.

Her boyfriend — Larry Karsh — ate as much junk food as she did, but never put on an ounce. Some people have metabolisms like that. He never exercised. He just sat all day long at the desktop computer he had brought with him, designing our magnetic bumper and munching on sweet rolls and greaseburgers.

It took me awhile to figure out that Larry was plying Melinda with food so she'd stay too fat for anybody else to be interested in her. They were rooming together, but "like brother and sister," according to Melinda. One look at Larry's pasty, unhappy face, sprinkled with acne, told me that the brother-and-sister thing was making him miserable.

Without Larry, we'd never be able to build our hardware on the schedule we had promised in our proposal. Or maybe not at all. And so Sam decided a conference on romance was in order.

"Don't worry about a thing," Sam told the kid. "Mutt and I know everything there is to know about women. With us helping you she'll fall into your arms in no time flat."

Larry's face reddened. "I get kind of tongue-tied when I t-try to t-talk sw-sweet to her."

Sam stared at the kid. A stuttering lover? It didn't look good.

Then I got the idea of the century. "Why don't you talk to her through your computers?"

Larry got really excited about that. Computers were something he understood and trusted. As long as he didn't have to actually speak to her face-to-face, he could say anything we gave him.

"O.K.," Sam said, glancing at his wristwatch. "Mutt, you take our love-sick friend here to the library and borrow as many poetry books as they'll let you take out. I gotta get to the airport and meet Bonnie Jo."

Bonnie Jo Murtchison was the daughter of our financial backer, the banker who wanted his daughter married.

Melinda looked surprised when we came back into the office; those big brown eyes of hers flashed wide. But then she stuck her nose into her computer screen and began pecking at the keyboard as fast as her chubby little fingers would go.

Larry hadn't said a word to her. While he checked out his machine, I thumbed madly through one of the poetry books. God almighty, I hadn't

even looked at that stuff since they made me read it in high school English classes. I ran across one that I vaguely remembered.

Without speaking, I showed the page to Larry, then left the book on his desk and went over to my own, next to the window. As nonchalantly as I could, I booted up my own machine, waiting to see if the kid actually worked up the nerve to send the poem to Melinda, sitting four and a half feet away from him.

Sure enough, the words began to scroll across the screen: "Come live with me and be my Love. . . ."

I don't know what Melinda was working on, but I guess when she saw the message light blink on her machine, she automatically set the screen to receive it.

Her eyes went *really* wide. Her mouth dropped open as she read the lines of poetry scrolling onto her screen. To make sure she didn't think they were coming from me, I picked up the telephone and tapped the first button on my automatic dialer. Some guy's bored voice told me that the day's high would be eighty-two, with an 80 percent chance of showers in the afternoon.

Melinda looked at me kind of puzzled. I ignored her and looked out my window, where I could watch her reflection without her knowing it. I saw a suspicion on her face slowly dawn into certainty. She turned and looked at Larry, who promptly turned flame red.

A good beginning, I thought.

Then Sam burst into the office, towing Bonnie Jo Murtchison.

When it came to women, Sam was truly democratic. Tall or short, plump or anorexic, Sam made no distinctions based on race, creed, color, or previous condition of servitude. But he did seem to hit on blondes preferentially.

Bonnie Joe Murtchison was blonde, the kind of golden blonde with almost reddish highlights that is one of the triumphs of modern cosmetic chemistry. Her hair was frizzed, shoulder length, but pushed back off her face enough to show two enormous bangle earrings. She had a slight figure, almost boyish. Good legs, long and strong and nicely tanned. A good tennis player, I thought. That was the first thing that popped into my mind when I saw her.

She was wearing a neat little miniskirted sleeveless frock of butter yellow, the kind that costs a week's pay. More jewelry on her wrists and

fingers, necklaces dangling down her slim bosom. She clattered and jangled as she came into the office, towering over Sam by a good five-six inches.

The perfect spoiled princess, I thought at once. Rich father, beautiful mother, and no brothers or sisters. What a pain in the butt she's going to be.

I was right, but for all the wrong reasons.

Sam introduced her to Larry, who mumbled and avoided her eyes, and to Melinda, who looked her over like a professional prizefighter assessing a new opponent. Then he brought her across the room to my desk.

"This is our president, Spence Johansen," Sam said. "I call him Mutt."

She reached across the desk to take my hand in a firm grip. Her eyes were gray-green, a color that haunted me so much I looked it up in a book on precious stones at the local library. The color of Brazilian tourmaline: deep, mysterious, powerful grayish green.

"And what would you like me to call you, Mr. Johansen?" she asked in a marvelous voice.

She just sort of naturally drew a smile out of me. "Spence will be fine," I said.

"Good. I'm Bonnie Jo."

I think I fell in love with her right then and there.

"That was pretty quick," the reporter sniffed.

Johansen shrugged. "It happens that way, sometimes."

"Really?"

"Haven't you ever fallen in love at first sight?"

She thought a moment. The drinks she had been swilling made her head spin slightly.

"Yes, I guess I have, at that," she said at last.

That smile of his made her head swim even more.

Johansen looked out across the grassy hills that stretched below them to the edge of the toylike village. Sunlight filtering through the big solar windows slanted long shadows down there.

"It's going to be sunset pretty soon," he said. "I know a fine little restaurant down in Gunnstown, if you're ready for dinner."

"Gunnstown?" she asked.

"That's the name of the village down there." He pointed with an outstretched arm.

"Should I change?"

Grinning: "I like you the way you are."

"My clothes," she said.

He cocked his head slightly. "It's a very nice little Continental restaurant. Tablecloths and candles, that sort of thing."

"I'll change," she said. "Meet me at my hotel room in an hour."

When he called for her, precisely one hour later, Johansen was wearing a comfortable pair of soft blue slacks and a slate-gray velour pullover, the closest thing to formal attire on the space habitat. The reporter had shopped furiously in Gunnstown's two and only boutiques until she found a miniskirted sleeveless frock of butter yellow.

Once they were sitting across a tiny table, with a softly glowing candle between them, she realized that he had changed the subject on her.

"Just before you suggested dinner, you were telling me about Bonnie Jo," she said, trying to keep her voice even. "About falling in love with her."

It wasn't a tough thing to do — Johansen replied. I had expected a spoiled rich kid. Her father, the banker, had insisted on having one of his own people join the VCI team as treasurer. Apparently his daughter insisted stubbornly that she take the job. So there she was, at the desk we shoehorned into our one little office, two feet away from mine.

She had degrees in economics and finance from BYU, plus an MBA from Wharton. She really knew her business. And she was strictly nonsense. Sam wined and dined her, of course, but it didn't go any further than that, far as I could tell. I knew Sam had no real intention of getting married to anybody. I didn't think she did, either.

We were all living practically hand-to-mouth, with every cent we got from the government and from Bonnie Jo's father's bank poured into building the hardware for removing debris from orbit. Bonnie Jo was never hurting for spending money, of course, but she never lorded it over us. The weeks rolled by, and we sort of became a real team: you know, working together every day, almost living together, you come to know and respect each other. Or you explode.

Bonnie Jo even started helping Melinda in her personal life. Gave her hints about her clothes. Even went on a diet with her; not that Bonnie Jo needed it, but Melinda actually started to slim down a little. They

started going to exercise class down the way in the shopping mall.

I was giving myself a cram course in Romantic poetry and passing it all on to Larry. On Valentine's Day he wanted to give Melinda a big, heart-shaped box of chocolates. I suggested flowers instead. I figured she wouldn't eat flowers, although I wasn't altogether certain.

"And write a note on the card they put in with the flowers," I insisted.

He gulped. "Sh-should I s-s-s-sign my n-n-name?"

"Damned right."

Larry turned pale. But I marched him to the florist section of the supermarket, and we picked out a dozen posies for her. I towed him to the counter, where they had a little box full of blank cards. I handed him my government-issue ballpoint pen, guaranteed to write underwater or in zero gravity.

He looked at me, panic-stricken. "Wh-what'll I say?"

I thought for a second. "To the woman who has captured my heart," I told him.

He scribbled on the little card. His handwriting was awful.

"Sign it."

He stared at me.

"Better yet," I said, "just put your initial. Just an L."

He did that. We sneaked the bouquet into the office while Melinda and Bonnie Jo were out at the exercise class. Larry laid the flowers on her desk with a trembling hand.

Well, the last time I had watched a scene like what followed was in an old video called *Love Is a Many-Splendored Thing*. Melinda sort of went into shock when she saw the flowers on her desk, but only for a moment. She read the card, then spun around toward Larry — who looked white as a sheet, scared — and launched herself at him. Knocked him right off his desk chair.

Sam gave them the rest of the day off. It was Friday, so they had the whole weekend to themselves.

A few minutes after the lovers left the office, Sam frowned at his computer screen.

"I gotta check out the superconducting coils down at the Cape," he said. "Those suckers in Massachusetts finally delivered them. Arrived late this morning."

Two weeks late. Not good, but within the tolerable limits we had set in

our schedule. The manufacturer in Massachusetts had called a couple months earlier and said that delivery would be three months late, due to a big order they had to rush for Rockledge International.

Sam had screamed so loud and long into the phone that I thought every fiber-optic cable between Florida and Massachusetts would have melted. The connection actually broke down three times before he finished convincing our manufacturing subcontractor that: (a) their contract with us had heavy penalty clauses for late delivery; (b) since this order from Rockledge had come in *after* our order, we clearly had priority; and (c) this was obviously an attempt by Rockledge to sabotage us.

"Tell your goddamned lawyers to stock up on No-Doze," Sam yelled into the phone. "I'm going to sue you sneaking, thieving bastards sixteen ways from Sunday!"

He slammed the phone down hard enough to make the papers on my desk bounce.

"Now," — he reached for the phone again — "to put the fear of God Almighty into them."

I didn't eavesdrop on purpose, but our desks were jammed so close together that I couldn't help hearing him ask for Albert Clement. At the Department of Commerce.

Sam's tone changed enormously. He was stiffly formal with Clement, almost respectful, explaining the situation and his suspicion that Rockledge was trying to club us to death with their money. I wondered if this guy Clement was the same Commerce Department undertaker who had been at the evaluation hearing in D.C.

Well, it all got straightened out. The next day I got a very apologetic phone call from the director of contracts at the Massachusetts firm, some guy with an Armenian name. Terrible misunderstanding. Of course they wouldn't let this enormous order from Rockledge get in the way of delivering what they had promised to us. On schedule, absolutely. Maybe a week or so late, nothing more than that. Guaranteed. On his mother's grave.

I said nice things back to him, like: "Uh-huh. That's fine. I'm glad to hear it." Sam was watching me, grinning from ear to ear.

The guy's voice dropped a note lower, as if he were afraid he'd be overheard. "It's so much pleasanter dealing with you than that Mr. Gunn," he said.

"Well, I'm the president of the firm," I said back to him, while Sam held both hands over his mouth to stifle his guffaws. "Whenever a problem arises, feel free to call me."

He thanked me three dozen times.

I no sooner had put the phone down than it rang again. Pierre D'Argent, calling from Rockledge headquarters in Pennsylvania.

In a smarmy, oily voice, he professed shock and surprise that *anyone* would think that Rockledge was trying to sabotage a smaller competitor. I motioned for Sam to pick up his phone and listen in.

"We would never stoop to anything like that," he assured me. "There's no need for anyone to get hysterical."

"Well," I said, "it seemed strange to us that Rockledge placed such a large order with the outfit that's making our teeny little coils, and then tried to muscle them into shunting our work aside."

"We never did that," D'Argent replied, like a saint accused of rifling the poor box. "It's all a misunderstanding."

Sam said sweetly, "We've subpoenaed their records, oh silver-tongued devil."

"What? Who is that? Gunn, is that you?"

"See you in Leavenworth, Pee-air."

D'Argent hung up so hard I thought a gun had gone off in my ear. Sam fell off his chair laughing, and rolled on the floor, holding his middle and kicking his feet in the air. We had not subpoenaed anybody for anything, but it cost Rockledge a week's worth of extremely expensive legal staff work to find that out.

Anyway, that had happened months earlier, and now the superconducting coils had arrived at the Cape, and Sam had to buzz down there to inspect them. Leaving Bonnie Jo and me alone in the office. Friday afternoon. The weekend looming.

I did my level best to avoid her. She was staying at the Marriott Hotel in Titusville, so I steered clear of the whole town. Kept to myself in my little rattrap of a one-room apartment. Worked on my laptop all day Saturday, ate a microwaved dinner, watched TV. Then worked some more. Did not phone her, although I thought about it now and then. Maybe once every other minute.

Sunday it rained hard. I started to feel like a convict in prison. By noontime I had convinced myself that there was work to do in the office;

anything to get out of my room. It was pouring so thickly I got soaked running from my parking space to the covered stairs that led up to our office. First thing I did there was phone Sam's hotel down at the Cape. Checked out. Then I phoned his apartment. Not there.

I slid into my desk chair, squishing wet. O.K. He's back from the Cape. He's with Bonnie Jo. Good. I guess.

But I guessed wrong, because Bonnie Jo came into the office, brighter than sunshine in a bright yellow slicker and plastic rain hat.

"Oh," she said. "I didn't know you'd be here."

"Where's Sam?" I asked her.

She peeled off the hat and slicker. "I thought he'd be here. Probably he stayed at the Cape for the weekend."

"Yeah. He's got a lot of old buddies at the Cape."

"And girlfriends?"

"Uh, no. Not really." I was never much good at shading the truth.

Bonnie Jo sat at her desk and picked up the phone. "Highway Patrol," she said to the dialing-assistance computer program.

She saw my eyebrows hike up.

"On a stormy day like this, maybe he drove off the road."

The Highway Patrol had no accidents to report between where we were and the Cape. I puffed out a little sigh of relief. Bonnie Jo put the phone down with a bit of a dark frown on her pretty face.

"You worry about Sam that much?" I asked her.

"My job is to protect my daddy's investment," she said. "And my own."

Well, one thing led to another, and before I knew it, we were having dinner together in the Japanese restaurant down at the end of the mall. I had to teach Bonnie Jo how to use chopsticks. She caught on real fast. Quick learner.

"Are you two engaged, or what?" I heard myself ask her.

She smiled, kind of sad, almost. "It depends on who you ask. My father considers us engaged, although Sam has never actually popped the question to me."

"And what do you think?"

Her eyes went distant. "Sam is going to be a very rich man someday. He has the energy and drive and willingness to swim against the tide that will make him a multimillionaire, eventually. If somebody doesn't strangle him first."



"So that makes him a good marriage prospect."

Her unhappy little smile came back. "Sam will make a terrible husband. He's a womanizer who doesn't give a thought to anybody but himself. He's lots of fun to be with, but he'd be hell to be married to."

"Then why . . . ?"

"I already told you. To protect my daddy's investment."

"You'd marry him? For that?"

"Why not? He'll have his flings; I'll have mine. As long as I can present my daddy with a grandson, everybody will be happy."

"But . . . love. What about love?"

Her smile turned bitter. "You mean like Melinda and Larry? That's for the peasants. In my family, marriage is a business proposition."

I dropped the chunk of sushi in my chopsticks right into my lap.

Bonnie Jo leaned across the little table. "You're really a very romantic guy, aren't you, Spence? Have I shocked you?"

"Uh, no, not . . . well, I guess I never met a woman with your outlook on life."

"Never dated an MBA before?" Her eyes sparkled with amusement now. She was teasing me.

"Can't say that I have."

She leaned closer. "Sam's out at the Cape chasing cocktail waitresses and barmaids. Maybe I ought to go to a bar and see what I can pick up."

"Maybe you ought to go home before you pick up something that'll increase your father's health insurance premiums," I said, suddenly feeling sore at her.

She gave me a long look. "Maybe I should, at that."

And that was our dinner together. I never touched her. I never told Sam about it. But the next morning, when he showed up at the office looking like every blue Monday morning in the history of the world — bleary-eyed, pasty-faced, muttering about vitamin E — I knew I couldn't hang around there with Bonnie Jo so close.

Melinda and Larry arrived hand in hand. I swear his acne was cleared up almost entirely in just that one weekend. And so had his stuttering. Bonnie Jo came in around ten, took a silent look at Sam, and went to her desk as cool as liquid nitrogen. Sam was inhaling coffee and orange juice in roughly equal quantities.

"Sam," I said, my voice so loud that it startled me, "since I'm president

of this outfit, I've just made an executive decision."

He looked over toward me with bloodshot eyes.

"I'm going over to the Cape," I announced.

"I was just there," he croaked.

"I mean to stay. Hardware's starting to arrive. We need somebody to direct the assembly technicians, somebody there on the scene all the time, not just once a week. Somebody with the power to make decisions."

Sam shook his head stubbornly. "We haven't budgeted for you to be living in a hotel at the Cape. You know how tight everything is."

"The budget can be stretched," Bonnie Jo said. "I think Spence is right. His being on the Cape could save us a lot of problems."

Sam's head swiveled from her to me and back to her again. He looked puzzled, not suspicious. Finally he shrugged good-naturedly and said, "O.K., as long as it won't bust the bank."

SO I moved to the Cape. During the weeks I was there supervising the assembly and checkout of our equipment, I saved a couple of minor glitches from growing into real headaches. Larry drove over once a week to check the hardware against his design; then he'd drive back to Melinda again that evening. I knew I could justify the expense legitimately, if it came to that. Most important, though, was that I had put some miles between myself and Bonnie Jo. And she must have realized how attracted I was to her, because she convinced Sam I should get away.

A couple of my old agency buddies sneaked me some time on the OMV simulator, so I spent my evenings and spare weekends brushing up on my flying. Our official program didn't call for any use of orbital maneuvering vehicles. What we had proposed was to set up our magnetic bumper on the forward end of space station Freedom and see how well it deflected junk out of the station's orbital path. Called for some EVA work, but we wouldn't need to fly OMVs.

But Sam had warned me to be prepared for some OMV work, back when we first started writing the proposal.

"Whattaya think we oughtta do," he had asked me, "if we scoop up something valuable?"

"Valuable?" I had asked.

"Like that glove Ed White lost. Or the famous Hasselblad camera from back in the Gemini days."

We had been sitting in our favorite booth in our favorite bar. Sam liked Corona in those days; slices of lime were littered across his side of the table, with little plastic spears stuck in their sides. Me, I liked beer with more flavor to it: Bass Ale was my favorite.

Anyway, I thought his question was silly.

"In the first place," I said, "the magnetic field won't scoop up objects; it'll deflect them away from the path of the station. Most of them will be bounced into orbits that'll spiral into the atmosphere. They'll reenter and burn up."

"But suppose we got to something really *valuable*," Sam insisted. "Like a spacer section from the Brazilian booster. Or a piece of that European upper stage that blew up. Analysts would pay good money to get their hands on junk like that."

"Analysts?"

"In Washington," Sam said. "Or Paris, for that matter. Hell, even our buddy D'Argent would like to be able to present his Rockledge lab boys with chunks of the competition's hardware."

I had never thought of that.

"Then there're the museums," Sam went on, kind of dreamy, the way he always gets when he's thinking big. "How much would the Smithsonian pay for the *Eagle*?"

"The *Apollo 11* lunar module?"

"Its lower section is still up there, sitting on the Sea of Tranquility."

"But that's the Moon, Sam. A quarter-million miles away from where we'll be!"

He gave me his sly grin. "Brush up on your flying, Mutt. There are interesting times ahead. Ve-r-r-y interesting."

I could see taking an OMV from the space station and flitting out to retrieve some hunk of debris that looked important or maybe valuable. So I spent as many of my hours at the Cape as possible in the OMV simulator. It helped to keep me busy; helped me to not think about Bonnie Jo.

At first I thought it was an accident when I bumped into Pierre D'Argent in the Shuttle Lounge. It was late in the afternoon, too soon for the after-work crowd. The lounge was cool, and so dark that you could break your neck tripping over cocktail tables before your eyes adjusted from the summer glare outside.

"Mr. Johansen!" He professed surprise and asked me to join him.

So I sat at his little table. With my back to the wall. Just the two of us, although there were a few regulars up at the bar watching a baseball game from Japan.

I ordered a Bass. D'Argent already had a tall, frosted glass of something in front of him, decorated with enough fruit slices to start a plantation. And a little paper umbrella.

"Your friend Gunn sent our legal department into quite a spin," he said, smiling with his teeth.

"Sam's a very emotional guy," I said as the waitress brought my ale. She was a cute little thing, in a low-cut black outfit with a teeny-tiny skirt.

"Yes, he is indeed." D'Argent let out a sigh. "I'm afraid Mr. Gunn has no clear idea of where his own best interests lie."

I took a sip of ale instead of trying to answer.

"Now, you, Mr. Johansen," he went on, "you look like someone who understands where your best interests lie."

All I could think of to say was, "Really?"

"Really," D'Argent said. "I must confess that I thought your technical proposal was little short of daring. Much better than the job my own technical people did. They were far too conservative. Far too."

Was he pumping me for information? I mumbled something noncommittal and let him go on talking.

"In fact," he said, smiling at me over his fruit salad, "I think your technical approach is brilliant. A magnetic-deflector system actually mounted on the space station. Very daring. Very original."

"It was Sam's idea," I said, trying to needle him.

It didn't faze him a bit. "It was actually the idea of Professor Luke Steckler of Texas A&M. Our people saw his paper in the technical literature, but they didn't have the guts to use the idea. You did."

"Sam did."

He hiked his eyebrows a bit. They were gray, too. "You're much too modest, Spence. You don't mind if I call you Spence, do you?"

I did mind. I suddenly felt like I was in the grip of a very slick used-car salesman. But I shook my head and hid behind my mug of ale.

D'Argent said, "Spence, I know that my technical people at Rockledge would love to have you join their team. They need someone daring, someone willing to take chances."

I guess my eyebrows went up, too.

Leaning forward over the tiny table, D'Argent added in a whisper, "And we'll pay you twice what Gunn is paying."

I blinked. Twice.

The lounge was slowly filling up with happy-hour customers: mostly engineers from the base, and salespeople trying to sell them stuff. They all talked low, almost in whispers. At least, until they got a couple of drinks into them. Then the noise volume went up, and some of the wilder ones even would laugh now and then. But while I was sitting there trying to digest D'Argent's offer without spilling beer in his face, I could still hear the soft-rock music coming through the ceiling speakers, something old and sad by the Carpenters.

"I would like you to talk with a few of my technical people, Spence. Would you be willing to do that?"

Twice my VCI salary. And that was just for openers. It was obvious he'd be willing to go higher. Maybe a lot higher. I'd been living on happy-hour hors d'oeuvres and junk food. I was four months behind on the rent for my seedy dump of an apartment — which was sitting empty, because of Bonnie Jo.

But I shook my head. "I'm happy with VCI." *Happy* wasn't exactly the right word, but I couldn't leave Sam in the lurch. On the other hand, this might be the best way to make a break with Bonnie Jo.

Turning slightly in his chair, D'Argent sort of nodded toward a trio of guys in suits sitting a few tables away from me.

"I've taken the liberty of asking a few of my technical people to come here to meet you. Would you be willing to talk with them, Spence? Just for a few minutes."

Son of a bitch! It was no accident that we bumped into each other. It was a planned ambush.

"I think, with your help, we can adapt the magnetic-bumper concept easily enough," he was saying, silky-smooth. "We'd even pay you a sizable bonus for joining Rockledge; say, a year's salary."

They wanted to steal Sam's idea and squeeze him out of the picture. And they thought I'd help them do it. For money.

I got to my feet. "Mr. D'Argent, Rockledge doesn't have enough money in its whole damned corporate treasury to buy me away from VCI."

D'Argent shrugged, very European-like, and made a disappointed sigh. "Very well, although your future would be more secure with Rockledge

than with a con man such as Mr. Gunn."

Through gritted teeth, I said, "I'll take my chances with Sam." And I stalked out of the lounge, leaving him sitting there.

"That was a pretty noble thing to do," the reporter said.

They were more than halfway through their dinners. She had ordered trout from the habitat's aquaculture tanks. Johansen was eating braised rabbit. The reporter had to remind herself that rabbit was bred for meat here in the space habitat, just as beef was on Earth.

"Nothing noble about it," he said easily. "It made me feel kind of slimy just to be sitting at the same table with D'Argent. Working with the . . . gentleman, well, I just couldn't do it."

"Even though you were trying to get away from Bonnie Jo."

He shook his head slightly, as if disappointed with himself. "That was really tough. I wanted to get away from her, and I wanted to be with her, both at the same time."

"So what did you do?"

He grinned. "I got away. I went up to space station Freedom."

**S**AM HAD served aboard Freedom when he'd been in the agency — Johansen explained. He was definitely persona non grata there, as far as the bureaucrats in Washington and the Cape were concerned, even though all the working stiffs — the astronauts and mission specialists — they all asked me how he was and when he would be coming up. Especially a couple of women astronauts.

Living aboard Freedom was sort of like living in a bad hotel, without gravity. The quarters were cramped, there was precious little privacy, the hot water was only lukewarm, and the food was as bland as only a government agency could make it. I spent ten-twelve hours a day inside a space suit, strapped into an MMU — a manned maneuvering unit — assembling our equipment on the special boom outside the station.

The agency insisted that the magnetic field could not be turned on until every experiment being run inside the lab module was completed. Despite all our calculations and simulations (including a week's worth of dry run on the station mock-up in Huntsville), the agency brass were worried that our magnetic field might screw up some delicate experiment the scientists were doing. It occurred to me that they didn't seem worried

about screwing up the station's own instrumentation or life-support systems. That would have threatened the lives of just astronauts and mission specialists, not important people like university scientists on their campuses.

Anyway, after eleven days of living in that zero-gee tin can, I got the go-ahead from mission control to turn on the magnetic field. Maybe the fact that one of the big solar panels got dinged with a stray chunk of junk hurried their decision. The panel damage cut the station's electrical power by a couple of kilowatts.

Rockledge had already launched two of the Nerf balls: one on a shuttle mission, and the other from one of their own little commercial boosters. They were put into orbits opposite in direction to the flow of all the junk floating around, sort of like setting them to swim upstream.

Right away they started having troubles. The first Nerf ball expanded only partway. Instead of knocking debris out of orbit, it became a piece of junk itself, useless and beyond anybody's control. The second one performed O.K., although the instrumentation aboard it showed that it was getting sliced up by some of the bigger pieces of junk. Rather than being nudged out of orbit when they hit the sticky balloon, they just rammed right through it and came out the other end. Maybe they got slowed enough to start spiraling in toward reentry. But it wouldn't take more than a couple of weeks before the Nerf ball was ripped to shreds — and became yet another piece of orbiting junk.

"They're part of the problem," I said to Sam over the station's video-phone link, "instead of being part of the solution."

Sam's round face grinned like a jack-o-lantern. "So that's why D'Argent's looking like a stockbroker on Black Tuesday."

"He's got a lot to be worried about," I said.

Sam cackled happily. Then, lowering his voice, he said, "A friend of mine at the tracking center says the old original Vanguard satellite is going to reenter in a couple weeks."

"The one they launched in '58?"

"Yep. It's only a couple of pounds. They called it the grapefruit back then."

I looked over my shoulder at Freedom's crew members working at their stations. I was in the command module, standing in front of the video-phone screen with my stockinged feet anchored in floor loops to keep

me from floating around the place weightlessly. The crew — two men and a woman — were paying attention to their jobs, not to me. But still. . . .

"Sam," I said in a near whisper, "you want me to try to retrieve it?"

"Do you have any idea of what the Smithsonian will pay for it?" he whispered back. "Or the *Japanese*?"

I felt like a fighter pilot being asked to take on a risky mission. "Shoot me the orbital data. I'll see what I can do."

It took a lot of good-natured wheedling and sweet-talking before Freedom's commander allowed me to use one of the station's OMVs. There was a provision for it in our contract, of course, but the station commander had the right to make the decision as to whether VCI might actually use one of the little flitters. She was a strong-willed professional astronaut; I'd known her for years, and we'd even dated now and then. She made me promise her the Moon, just about. But at last she agreed.

The orbital maneuvering vehicles were sort of in between the MMUs that you could strap onto your back and the orbital transfer vehicles that were big enough for a couple of guys to go all the way to GEO. The OMVs were stripped-down little platforms with an unpressurized cockpit, a pair of extensible arms with grippers on their ends, and a rocket motor hanging out the rear end.

I snatched the old Vanguard grapefruit without much trouble, saving it from a fiery death after it had spent more than half a century in space. It was just about the size and shape of a grapefruit, with a metal skin that had been blackened by years of exposure to high-energy radiation. Its solar cells had gone dead decades ago.

Anyway, Sam was so jubilant that he arranged to come up to Freedom in person to take the satellite back to Earth. Under his instructions, I had not brought the grapefruit inside the station; instead, I stored it in one of the racks built into the station's exterior framework. Sam was bringing up a special sealed vacuum container to take the satellite back to the ground without letting it get contaminated by air.

Sam was coming up on one of the regular shuttle resupply flights. Since there wasn't any room for more personnel aboard the station, he would stay only long enough to take the Vanguard satellite and take it back to Earth with him.

That was the plan, anyway.

Well, the news that a private company had recaptured the old satellite



hit the media like a Washington scandal. Sam was suddenly hot news, proclaiming the right to salvage in space while all sorts of lawyers from government agencies and university campuses argued that the satellite by rights belonged to the government. The idea of *selling* it to the Smithsonian or some other museum seemed to outrage them.

I saw Sam on the evening TV news the night before he came up to the station. Instead of playing the little guy being picked on by the big bullies, Sam went on the attack:

"The satellite's been floating around up there as dead as a doornail since before I was born," he said to the blonde who was interviewing him. "My people located it; my people went out and grabbed it. Not the government. Not some college professor who never even heard of the Vanguard 1958b until last week. My people. VCI, Incorporated."

"But the satellite was paid for by the American taxpayer."

"It was nothing but useless junk. It went unclaimed for decades. The law of salvage says whoever gets it, owns it."

"But the law of salvage is from maritime law. No one has extended the law of salvage into space."

"They have now!" Sam grinned wickedly into the camera.

It didn't help, of course, when some Japanese billionaire offered 30 billion yen for the satellite.

Next thing you know, the shuttle resupply flight had no fewer than five guests aboard. They had to bump an astronomer who was coming up to start a series of observations, and a medical doctor who was scheduled to replace the medic who'd been serving aboard the station for ninety days.

Five guests: Sam, Ed Zane from the space agency, Albert Clement from the Department of Commerce; Pierre D'Argent of Rock-by-damn-ledge.

And Bonnie Jo Murtchison.

Sam was coming up to claim the satellite, of course. Zane and Clement were there at the request of the White House to investigate this matter of space salvage before Sam could peddle the satellite to anyone — especially the Japs. I wasn't quite sure what the hell D'Argent was doing there, but I knew he'd be up to no good. And Bonnie Jo?

"I'm here to protect my investment." She smiled when I asked her why she'd come.

"How did you get them to allow you . . . ?"

We were alone in the shuttle's mid-deck compartment, where she and Sam and the other visitors would be sleeping until the shuttle undocked from the station and returned to Earth — with the satellite, although who would have ownership of the little grapefruit remained to be seen.

Bonnie Jo was wearing a light blue agency-issue flight suit that hugged her curves so well it looked like it was tailor-made for her. She showed no signs of space adaptation syndrome, no hint that she was ill at ease in zero-gee. Looked to me as if she enjoyed being weightless.

"How did I talk them into letting me come up here with Sam? Simple. I am now VCI's legal counsel."

She sure was beautiful. She had cropped her hair real short, almost a crew cut. Still, she looked terrific. I heard myself ask her, as if from a great distance away, "You're a lawyer, too?"

"I have a law degree from the University of Utah. Didn't I tell you?" The whole situation seemed to amuse her.

When a government employee gets an order from the White House, even if it's from some third assistant to the flunky, he jumps as high as is necessary. In the case of Zane and Clement, they had been told to settle this matter about the satellite, and they had jumped right up to space station Freedom. Clement looked mildly upset at being in zero gravity. I think what bothered him more than anything else was that he had to wear coveralls instead of his usual chalky gray three-piece suit. Darned if he didn't find a gray flight suit, though.

Zane was really sick. The minute the shuttle went into weightlessness, Sam gleefully told me, Zane had started upchucking. The station doctor took him in tow and stuck a wad of antinausea slow-release medication pads on his neck. Still, it would take a day or more before he was well enough to convene the hearing he'd been sent to conduct.

Although the visitors were supposed to stay aboard the shuttle, Sam showed up in the command module and even wheedled permission to wriggle into a space suit and go EVA to inspect our hardware. It was working just the way we had designed it, deflecting the bits of junk and debris that floated close enough to the station to feel the influence of our magnetic bumper.

"I must confess that I didn't think it would work so well."

I turned from my console in the command module and saw Pierre D'Argent standing behind me. "Standing" is the wrong word, almost, be-

cause you don't really stand straight in zero-gee; your body bends into a sort of question-mark kind of semicrouch, as if you were floating in very salty water. Unless you consciously force them down, your arms tend to drift up to chest height and hang there.

It made me uneasy to have D'Argent hanging (literally) around me. My console instruments showed that the bumper system was working within its nominal limits. I could patch the station's radar display onto my screen to see what was coming toward us, if anything. Otherwise, there were only graphs to display and gauges to read. Our equipment was mounted outside, and I didn't have a window. The magnetic field itself was invisible, of course.

"The debris actually gains an electrical charge while it orbits the Earth," he muttered, stroking his gray mustache as he spoke.

I said nothing.

"I wouldn't have thought the charge would be strong enough to be useful," he went on, almost as if he were talking to himself. "But then, your magnetic field is very powerful, isn't it, so you can work with relatively low charge values."

I nodded.

"We're going to have to retrieve our Nerf balls," he said with a sad little sigh. "The corporation will have to pay the expense of sending a team up to physically retrieve them and bring them back to Earth for study. We won't be launching any more of them until we find out where we went wrong with these."

"The basic idea is wrong," I said. "You should have gone magnetic in the first place."

"Yes," D'Argent agreed. "Yes, I see that now."

When I told Sam about our little conversation, he got agitated.

"That sneaky sonofabitch is gonna try to steal it out from under us!"

It all came to a head two days later, when Zane finally got well enough to convene his meeting.

It took place in the shuttle's mid-deck compartment, the six of us crammed in among the zippered sleeping bags and rows of equipment trays. Bonnie Jo anchored herself next to the only window, the little round one set into the hatch. D'Argent managed to get beside her, which made me kind of sore. I plastered my back against the airlock hatch at the rear of the compartment.

Sam, being Sam, hovered up by the ceiling, one arm wrapped casually on a rung of the ladder that led up to the cockpit. Zane and Clement strapped themselves against the rows of equipment trays that made up the front wall of the compartment.

Zane still looked unwell, even more bloated in the face than usual, and queasy green. Clement seemed no different than he'd been in Washington; it was as if his surroundings made no impact on him at all. Even in a flight suit, he was a thin, gray old man, and nothing more.

Yet he avoided looking at Sam. And I noticed that Sam avoided looking at him. Like two conspirators who didn't want the rest of us to know that they were working secretly together.

"This is a preliminary hearing," Zane began, his voice a little shaky. "Its purpose is to make recommendations, not decisions. I will report the results of this meeting directly to the vice president, in his capacity as chairman of the Space Council."

Vice President Benford had been a scientist before going into politics. I doubted that he would look on Sam's free-enterprise salvage job with enthusiasm.

"Before we begin. . . ." There was D'Argent with his finger raised in the air again.

"What's he doing here, anyway?" Sam snapped. "What's Rockledge got to do with this hearing?"

Zane had to turn his head and look up to face Sam. The effort made him pale slightly. I saw a bunch of faint rings against the skin of his neck, back behind his ear, where medication patches had been.

"Rockledge is one of the two contractors currently engaged in the orbital-debris-removal feasibility program," Zane said carefully, as if he were trying hard not to throw up.

Bonnie Jo said, "VCI has no objection to Rockledge's representation at this hearing."

"We don't?" Sam snapped.

She smiled up at him. "No, we don't."

Sam muttered something that I couldn't really hear, but I could imagine what he was saying to himself.

D'Argent resumed, "I realize that this hearing has been called to examine the question of space salvage. I merely want to point out that there is a larger question involved here also."

"A larger question?" Zane dutifully gave his straight line.

"Yes. The question of who should operate the debris-removal system once the feasibility program is finished."

"Who should operate. . . ." Sam turned burning red.

"After all," D'Argent went on smoothly, "the debris-removal system should be used for the benefit of its sponsor — the government of the United States. It should not be used as a front for shady, fly-by-night schemes to enrich private individuals."

Sam gave a strangled cry and launched himself at D'Argent like a guided missile. I unhooked my feet from the floor loops just in time to get a shoulder into Sam's ribs and bounce him away from D'Argent. Otherwise, I think he would have torn the guy limb from limb right then and there.

Bonnie Jo yelled, "Sam, don't!" Clement seemed to faint. My shoulder felt as if something had broken in there.

And Zane threw up over all of us.

That broke up the meeting pretty effectively.

It took Bonnie Jo and me several hours to calm Sam down. He was absolutely livid. We carried him kicking and screaming out of the shuttle and into the station's wardroom, by the galley.

What really sobered Sam up was Bonnie Jo. "You damned idiot! You're just proving to those government men that you shouldn't be allowed to operate anything more sophisticated than a baby's rattle!"

He blinked at her. I had backed him up against the wall of the wardroom and was holding him by his shoulders to stop him from thrashing around.

"I screwed up, huh?" Sam said sheepishly.

"You certainly showed Zane and Clement how mature you are," said Bonnie Jo.

"But that sonofabitch is trying to steal the whole operation right out from under us!"

"And you're helping him."

Before I could say anything, the skipper poked her brunette head into the wardroom.

"Can I see you a minute, Spence?" she asked. From the look on her face, I guessed it was business, and urgent.

I pushed over to her. She motioned me through the hatch, and we

both headed for the command module, like a pair of swimmers coasting side by side.

"Got a problem," she said. "Mission control just got the word from the tracking center that Rockledge's damned Nerf ball is on a collision course with us."

I got that sudden lurch in the gut that comes when your engine quits or you hear a hiss in your space suit.

"How the hell could it be on a collision course?" I didn't want to believe it.

She pulled herself through the hatch and swam up to her command station. Pointing to the trio of display screens mounted below the station's only observation window, she said, "Here's the data; see for yourself."

I still couldn't believe it, even though the numbers made it abundantly clear that in less than one hour, the shredded remains of one of the Nerf balls was going to come barreling into the station at a closing velocity of more than ten miles per second.

"It could tear a solar panel off," the commander said tightly. "It could even puncture these modules if it hits dead center."

"How the hell . . . ?"

"It banged into the spent final stage of the *Ariane 4* that was launched last week. Got enough energy from the collision to push it up into an orbit that will intersect with ours in . . ."—she glanced at the digital clock on her panel — ". . . fifty-three minutes."

"The magnetic field won't deflect it," I said. "It hasn't been in space long enough to build up a static electrical charge on its skin."

"Then we'll have to abandon the station. Good thing the shuttle's still docked to us."

She moved her hand toward the communications keyboard. I grabbed it away.

"Give me five minutes. Maybe there's something we can do."

I called Sam to the command module. Bonnie Jo was right behind him. Swiftly, I outlined the problem. He called Larry, back in Florida, who immediately agreed that the magnetic bumper would have no effect on the Nerf ball. He didn't look terribly upset; to him, this was a theoretical problem. I could see Melinda standing behind him, smiling into the screen like a chubby Mona Lisa.

"There's no way we could deflect it!" Sam asked.

"Not unless you could charge it up," Larry said.

"Charge it?"

"Spray it with an electron beam," he said. "That'd give it enough of a surface charge for the magnetic field to deflect it."

Sam cut the connection. Forty-two minutes and counting.

"We have several electron-beam guns aboard," the skipper said. "In the lab module."

"But they're not powerful enough to charge the damned Nerf ball until it gets so close it'll hit us anyway," Sam muttered.

"We could go out on one of the OMVs," I heard myself suggest.

"Yeah!" Sam brightened. "Go out and push it out of the way."

I had to shake my head. "No, Sam. That won't work. The Nerf ball is coming toward us; it's in an opposite orbit. The OMV doesn't have enough delta-vee to go out there, turn around and match orbit with it, and nudge it into a lower orbit."

"You'd have to ram the OMV into it," the commander said. "Like a kamikaze."

"No, thanks," Sam said. "I'm brave, but I'm not suicidal." He started gnawing his fingernails.

I said, "But we could go out on an OMV and give it a good squirt with an electron gun as we passed it. Charge it up enough for the magnetic bumper to do the job."

"You think so?"

"Forty minutes left," Bonnie Jo said. Not a quaver in her voice. Not a halftone higher than usual. Not a hint of fear.

The commander shook her head. "The OMVs aren't pressurized. You don't have enough time for pre-breathe."

See, to run one of the OMVs, you had to be suited up. Since the suits ran on pure oxygen, pressurized only to a third of the normal air pressure that the station used, you had to pre-breathe pure oxygen for about an hour before sealing yourself inside the suit. Otherwise, nitrogen bubbles would collect in your blood, and you'd get the bends, just like a deep-sea diver.

"Fuck the pre-breathe," Sam snapped. "We're gonna save this damned station from Rockledge's runaway Nerf ball."

"I can't let you do that," the skipper said. Her hand went out to the comm keyboard again.

Sam leveled a stubby finger at her. "You let us give it a shot, or I'll tell everybody back at the Cape what *really* happened when we were supposed to be testing the lunar-module simulator."

Her face flushed dark red.

"Listen," Sam said jovially. "You get everybody into the shuttle and pull away from the station. Mutt and I will go out in the OMV. If we can deflect the Nerf ball and save the station, you'll be a hero. If not, the station gets shredded, and you can give the bill to Rockledge International."

I hadn't thought of that. Who would be responsible for the destruction of this \$20 billion government installation? Who carried damage insurance on the space station?

"And the two of you will die of the bends," she said. "No, I won't allow it. I'm in charge here, and—"

"Stick us in an airlock when we get back," Sam cajoled. "Run up the pressure. That's what they do for deep-sea divers, isn't it?"

Thirty-five minutes.

The skipper gave in, of course. Sam's way was the only hope she had of saving the station. Besides, whatever they had done in the lunar simulator was something she definitely did not want broadcast. So, ten minutes later, Sam and I are buttoning ourselves into space suits while the skipper and one of her crew are floating an electron gun down the connecting tunnel to the airlock where the OMVs are docked. Everyone else was already jamming themselves into the shuttle mid-deck and cockpit.

Everybody except Bonnie Jo, who was cool and calm under fire.

I shook my head to get rid of my thoughts about her as I pulled on the space suit helmet. Sam was already buttoned up. My ears popped when I switched on the suit's oxygen system, but otherwise there were no bad effects.

The orbital maneuvering vehicle had a closed cockpit, but it wasn't pressurized. I lugged the electron gun and its power pack inside. "Lugged" isn't the right word, exactly. The apparatus was weightless, just like everything else. But it was bulky and awkward to handle.

Sam did the piloting. I set up the electron gun and ran through its checks. Every indicator light was green, although the best voltage I could crank out of it was a bit below max. That worried me. We'd need all the juice we could get when we whizzed past the Nerf ball.



We launched off the station with a little lurch and headed toward our fleeting rendezvous with the runaway. Through my visor I saw the station dwindle behind us, two football fields long, looking sort of like a square, double-ended paddle, the kind they use on kayaks, with a cluster of little cylinders huddled in its middle. Those were the habitat and lab modules. They looked small and fragile and terribly, terribly vulnerable.

For the first time in my life, I paid no attention to the big, beautiful curving mass of the Earth glowing huge and gorgeous below us. I had no time for sight-seeing, even when the sights were the most spectacular that any human being had ever seen.

The shuttle was pulling away in the opposite direction, getting the hell out of the line of fire. Suddenly we were all alone out there, just Sam and me inside this contraption of struts and spherical tanks that we called an OMV.

"Just like a World War I airplane movie," Sam said to me over the suit radio. "I'll make a pass as close to the Nerf ball as I can get. You spray it with the gun."

I nodded inside my helmet.

"Five minutes," Sam said, tapping a gloved finger on the radar display. In the false-color image of the screen, the Nerf ball looked like a tumbling mass of long, thin filaments, barely hanging together. Something in my brain clicked; I remembered an old antimissile system called Homing Overlay that looked kind of like an umbrella that had lost its fabric. When it hit a missile nose cone, it shattered the thing with the pure kinetic energy of the impact. That's what the tatters of the aluminized plastic Nerf ball would do to the thin skin of the space station, if we let it hit. I could picture those great big solar panels exploding, throwing off jagged pieces that would slice up the lab and habitat modules like shards of glass going through paper walls.

"Three minutes."

I swung the cockpit hatch open and pushed the business end of the electron gun outside with my boots.

"How long will the power pack run?" I asked. "The longer we fire this thing, the more chance we'll have of actually charging up the ball."

Sam must have shrugged inside his suit. "Might as well start now, Mutt. Build up a cloud that the sucker has to fly through. Won't do us a bit of good to have power still remaining once we've passed the god-damned spitball."

That made sense. I clicked the right switches and turned the power dial up to max. In the vacuum I couldn't hear whether it was humming or not, although I thought I felt a kind of vibration through my boots. All the dials said it was working, but that was scant comfort.

"One minute," Sam said. I knew he was flying our OMV as close to the Nerf ball as humanly possible. Sam was as good as they came at piloting. Better than I; not by much, but better. He'd get us close enough to kiss that little sucker, I knew.

We were passing over an ocean, which one I don't know to this day. Big, wide, deep blue below us, far as the eye could see, bright and glowing with long parades of teeny white clouds marching across it.

I saw something dark hurtling toward us, like a black octopus waving all its arms, like a silent banshee coming to grab us.

"There it . . . was," Sam said.

The damned thing went past us like a hypersonic bat out of hell. I looked down at the electron gun's gauges. Everything read zero. We had used up all the energy in the power pack.

"Well, either it works or it doesn't," Sam said. All of a sudden he sounded tired.

I nodded inside my helmet. I felt it, too: exhausted, totally drained. Just like the electron gun; we had given it everything we had. Now we had nothing left. We had done everything we could. Now it was up to the laws of physics.

"We'll be back at the station in an hour," Sam said. "We'll know then."

We knew before then. Our helmet earphone erupted a few minutes later with cheers and yells, even some whistles. By the time we had completed our orbit and saw the station again, the shuttle was already redocked. Freedom looked very pretty hanging up there against the black sky. Gleaming in the sunlight. Unscathed.

So all we had to worry about were the bends.

"Was it very painful?" the reporter asked.

Johansen gave her a small shrug. "Kind of like passing kidney stones for sixteen or seventeen hours. From every pore of your body."

She shuddered.

"We came out of it O.K.," he said. "But I wouldn't want to go through it again."

"You saved the station. You became heroes."

**W**E SAVED the station — Johansen agreed — but we didn't become heroes. The government didn't want to acknowledge that there had been any danger to Freedom, and Rockledge sure as hell didn't want the public to know that their Nerf ball had almost wrecked the station.

Everybody involved signed a secrecy agreement. Voluntarily. That was Ed Zane's idea. To give the guy credit, though, it was also his idea to force Rockledge to pay a cool million bucks for the cost of saving the station from their runaway Nerf ball. Rockledge ponied up without even asking their lawyers, and Zane saw to it that the money was split among the people who had been endangered — which included himself, of course.

Each of us walked away with about fifty thousand dollars, although it wasn't tax-free. The government called it a hazardous-duty bonus. It was a bribe, to keep us from leaking the story to the media.

Everybody agreed to keep quiet — except Sam, of course.

The medics took us out of the airlock, once we stopped screaming from the pain, and hustled us down to a government hospital on Guam. Landed the blessed shuttle right there on the island, on a five-mile-long strip they had built as an emergency landing field for the shuttle. They had to fly a 747 over to Guam to carry the orbiter back to Edwards Space Base. I think they got Rockledge to pay for that, too.

Anyway, they put Sam and me in a semiprivate room. For observation and tests, they said. I figured they wouldn't let either one of us out until Sam signed the secrecy agreement.

"Fifty thousand bucks, Sam," I needled him from my bed. "I could pay a lot of my bills with that."

He turned toward me, frowning. "There's more than money involved here, Mutt. A lot more."

I shrugged and took a nap. I wouldn't sign their secrecy agreement unless Sam did, of course. So there was nothing for me to do but wait.

Zane visited us. Sam yelled at him about kidnapping and civil rights. Zane scuttled out of the room. A couple of other Government types visited us. Sam yelled even louder, especially when he heard that one of them was from the Justice Department in Washington,

I was starting to get worried. Maybe Sam was carrying things too far.

They could keep us on ice forever in a place like Guam. They wouldn't let us call anybody; we were being held incommunicado. I wondered what Bonnie Jo was doing, whether she was worried about us. About me.

And just like that, she showed up. Like sunshine breaking through the clouds. She breezed into our hospital room the third day we were there, dressed in a terrific pair of sand-colored slacks and a bright orange blouse. And a briefcase.

She waltzed up between the beds and gave us each a peck on the cheek.

"Sorry I couldn't get here sooner," she said. "The agency wouldn't answer any questions about you until my Uncle Ralph issued a writ."

"Your Uncle Ralph?" Sam and I asked in unison.

"Justice Burdette," she said, sounding a little surprised that we didn't recognize the name. "The Supreme Court. In Washington."

"Oh," said Sam. "That Uncle Ralph."

Bonnie Jo pulled up a chair between our beds, angling it to face Sam more than me. She placed her slim briefcase neatly on the tiled floor at her feet.

"Sam, I want you to sign the secrecy agreement," she said.

"Nope."

"Don't be stubborn, Sam. You know it wouldn't be in the best interests of VCI to leak this story to the media."

"Why not? We saved the friggin' space station, didn't we?"

"Sam — you have proved the feasibility of the magnetic-bumper concept. In a few months, the agency will give out a contract to run the facility. If you don't sign the secrecy agreement, they won't give the contract to VCI. That's all there is to it."

"That's illegal!" Sam shot upright in his bed. "You know that! We'll sue the bastards! Call the news networks! Call —"

She reached out and put a finger on his lips, silencing him and making me feel rotten.

"Sam, the more fuss you make, the less likely it is that the government will award you the contract. They can sit there with their annual budgets and wait until you go broke paying lawyers. Then where will you be?"

He grumbled under his breath.

Bonnie Jo took her finger away. "Besides, that's not really what you want, is it? You want to operate the debris-removal system, don't you? You want to sell the Vanguard satellite to the Smithsonian, don't you?"

He kind of nodded, like a kid being led to the right answer by a kindly teacher.

"And after that?"

"Remove defunct commsats from GEO. Retrieve the *Eagle* from Tranquility Base and sell it to the highest bidder."

Bonnie Jo gave him a pleased smile. "All right, then," she said, picking up the briefcase. She placed it on her lap, opened it, and pulled out a sheaf of papers. "You have some signing to do."

"What about me?" I asked, kind of sore that she had ignored me.

Bonnie Jo peeled the top sheet from the pile and held it up in the air by one corner. "This one's for you, Sam. It's the secrecy agreement. There's one for you, too, Spence. All the others have to be signed by the president of VCI."

"Over my dead body," Sam growled.

"Don't tempt me," Bonnie Jo answered sweetly. "Read them first. All of them. Engage brain before putting mouth in gear."

"O.K., O.K," he said. "I'll read."

He put the secrecy agreement on the bed to one side of him and started going through the others. As he finished each document, he handed it to me so I could read it, too.

The first was a sole-source contract from the agency to run the debris-removal system for space station Freedom for five years. Not much of a profit margin, but government contracts never give a high percentage of profit. What they do is give you a steady income to keep your overhead paid. On the money from this contract, Larry and Melinda could get married and take a honeymoon to Tasmania, if they wanted to.

The second document made my eyes go wide. I could actually feel them dilating, like camera lenses. It was a contract from Rockledge International for VCI to remove six of their defunct commsats from geosynchronous orbit. I paged through to the money numbers. More zeroes than I had seen since the last time I had read about the national debt!

When I looked up, Bonnie Jo was grinning smugly at me. "That's D'Argent's peace offering. You don't blab about the Nerf-ball incident, and you can have the job of removing their dead commsats."

She had done it all. VCI would be the exclusive contractor for garbage removal, not only for the government, but for Rockledge as well. With that kind of a lead, we'd be so far ahead of any possible competitors that

nobody would even bother to try to get into the business against us.

I signed all the contracts. With a great show of reluctance, Sam signed the secrecy agreement. Then I signed mine.

"You're marvelous," I said to Bonnie Jo, handing her back all the documents. "To do all this. . . ."

"I'm just protecting my daddy's investment," she said. There was no smile on her face. She was totally serious. "And my own."

I couldn't look into those gray-green eyes of hers. I turned away.

Somebody knocked at the door. Just a soft little tap, kind of weak, timid.

"Now what?" Sam snapped. "Come on in," he yelled, exasperated. "Might as well bring the Mormon Tabernacle Choir with you."

The door opened about halfway, and Albert Clement slipped in, thin and gray as ever, back in his usual charcoal three-piece undertaker's suit.

"I'm sorry if I'm intruding," he said softly, apologetically.

Sam's frown melted. "You're not intruding."

Clement sort of hovered near the door, as if he didn't dare come any farther into the room.

"I wanted to make certain that you were all right," he said.

"You came all this way?" Sam asked. His voice had gone tiny, almost hollow.

Clement made a little shrug. "I had a few weeks' annual leave coming to me."

"So you came out to Guam."

"I wanted to. . . . That was a very courageous thing you did, son. I'm proud of you."

I thought I saw tears in the corners of Sam's eyes. "Thanks, Dad. I—" He swallowed hard. "I'm glad you came to see me."

"Dad?" The reporter was startled. "That withered old man was Sam's father?"

"He sure was," Johansen replied. "He and Sam's mother had divorced when Sam was just a baby, from what Sam told me later on. Sam was raised by his stepfather, took his name. Didn't even know who his real father was until just before he started up VCI."

"So it was his father who fed him the inside information from the Department of Commerce."

"Just the fact that the program had a small-business set-aside," Johansen countered. "Which was public knowledge. He didn't do anything wrong."

"But he certainly didn't want anyone to know about their relationship, either, did he?"

Johansen nodded. "I guess not. You know, I never saw Sam so — I guess *subdued* is the right word. He and Clement spent a solid week together. Once the hospital people let us get up and walk around, they even went deep-sea fishing together."

"I'll have to check him out," the reporter said, mostly to herself.

"Clement died a few years later. He retired from the Commerce Department and applied for residency right here in this habitat. Thought the low gravity would help his heart condition, but he died in his sleep before the habitat was finished building. Sam gave him a nice funeral. Quiet and tasteful. Not what you'd expect from Sam at all."

"And his mother? Is she still alive?"

Johansen shook his head. "He would never talk about his mother. Not a word. Maybe he discussed her with Clement, but I just don't know."

The reporter sat back in her chair, silent for a long moment while the candlelight flickered across her face. "So that's how Sam made his first fortune. With Vacuum Cleaners, Incorporated."

"VCI," Johansen corrected. "Yeah, he made a fortune, all right. Then he squandered it all on that loony hotel deal a couple of years later. By then he was completely out of VCI, though. I stayed on as president until Rockledge eventually bought us out."

"Rockledge?"

"Right. The big corporations always win in the end. Oh, I got a nice hunk of change out of it. Very nice. Set me up for life. Allowed me to buy a slice of this habitat and become a major shareholder."

"Did Sam ever marry Bonnie Jo?"

Johansen grimaced.

That got decided while we were still on Guam — Johansen replied.

Bonnie Jo hung around, just like Clement did. Sam seemed to spend more time with his father than with her, so I wound up walking the hospital grounds with her, taking her out to dinner, that kind of stuff.

Finally, one night over dinner, she told me she and Clement would be leaving the next day.

I said something profound, like, "Oh."

"When will you and Sam be allowed to leave the hospital?" she asked. We were in the best restaurant in the capital city, Agana. It was sort of a dump; the big tourist boom hadn't started yet in Guam. That didn't happen until a few years later, when Sam opened up the orbital hotel.

Anyway, I shrugged for an answer. I hadn't even bothered to ask the medics about when we'd be let go. The week had been very restful, after all the pressures we had been through. And as long as Bonnie Jo was there, I really didn't care when they sent us packing.

"Well," she said, "Albert and I go out on the morning flight tomorrow." There was a kind of strange expression on her face, as if she were searching for something and not finding it.

"I guess you'll marry Sam once we get back to the States," I said.

She moved her eyes away from mine and didn't answer. I felt as low as one of those worms that lives on the bottom of the ocean.

"Well . . . congratulations," I said.

In a voice so low I could barely hear her, Bonnie Jo said, "I don't want to marry Sam."

I felt my jaw muscles tighten. "But you still want to protect your father's investment, don't you? And your own."

Her eyes locked onto mine. "I could do that by marrying the president of VCI, couldn't I?"

I know how it feels to have your space suit ripped open. All the air whooshed out of me.

"Spence, you big handsome lunk, you're my investment," she said. "Didn't you know that?"

"Me?"

"Yes, you."

I nearly knocked the table over kissing her. I had never felt so happy in all my life.

"Which number wife was she?" The reporter was surprised at the acid in her voice.

Johansen pushed his chair slightly back from the restaurant table. "Number four," he said, somewhat reluctantly.

"And it didn't work out?"

"Wasn't her fault," he said. "Not really. I spent more time in orbit than



at home. She met this kid who was an assistant vice president at her father's bank. They had a lot more in common. . . ."

Johansen's voice trailed off. The candle between them was guttering low. The table was littered with the crumbs of dessert, emptied coffee cups. The restaurant was almost empty, except for one other couple and the stumpy little robot waiters standing impassively by each table.

"The reporter had one more question to ask. "I know that nobody ever retrieved the *Apollo 11* lunar module. What happened to Sam's plan?"

Johansen made a tight little grin. "The little guy was nobody's fool. Once the World Court decided that the right of salvage was pretty much the same in space as it is at sea, we went to the Moon and laid claim to all the hardware that Apollo astronauts had left behind, at all six landing sites."

"But it's all still there," the reporter said. "I've been to the Tranquility Base site. And the others. . . ."

"That's right." Johansen's smile broadened, genuinely pleased. "Sam's original thought was to auction the stuff off to the highest bidder. The Japanese were hot for it. So was the Smithsonian, of course. And some group of high-tech investors from Texas."

"So who bought it?"

"Nobody," Johansen replied. "Because Sam got the bright idea of offering it for free to Moonbase. The people there loved him for it. Thanks to Sam, Moonbase legally owns all the Apollo hardware resting on the Moon. Those landing sites are big tourist attractions for them."

"That was generous."

"Sure was. And, of course, Sam could get just about anything he wanted from Moonbase for years afterward."

"I see," said the reporter.

Johansen signaled for the bill. The robot trundled over, digits lighting up on the screen set into its torso. He tapped out his O.K. on the robot's keyboard and let the photocell take an impression of his thumbprint. The reporter turned off her recorder.

Johansen moved gracefully around the little table and held her chair while she stood up, feeling strangely unhappy that this interview was at an end.

As they strolled slowly down the footpath that led to the hotel where she was staying, Johansen suggested, "How'd you like to go hang gliding

tomorrow morning? We can use the low-gee area of the habitat; there's no danger at all."

The reporter knew she should refuse. Cut the cord cleanly. The interview is finished. Don't get involved. Make the break now.

"I'd love to," she heard herself say.

Johansen's smile beamed brighter than a laser. They walked along the footpath in the man-made twilight toward the little cluster of low buildings that was Gunnstown, where her hotel was situated. Johansen pointed out the lights of other towns overhead. In the darkness they could not see that the habitat's interior curved up and over them, the interior of a miles-wide cylinder.

"They're like stars," she said, gazing up at the lights.

"Some people even see constellations in them," he told her. "See, there's a cat — over there. And the mouse, down farther. . . ."

She nestled close to him as he pointed out the man-made constellations.

"Do you think you'll ever marry again?" she asked in a whisper.

"Not until I'm certain it will last," he answered immediately. "I've had enough hit-and-runs in my life. I want somebody I can settle down with and live happily ever after."

The reporter smiled up at him, happy and content. After all, she told herself, if this story about Sam Gunn goes over well, I'll be able to call my own shots with the network. Solar needs a correspondent here on this new habitat. Maybe I'll settle down here permanently. It might not be so bad. In fact, it could be very good.

She smiled secretly and said to herself, Could be.



*Avram Davidson's new story is a very short tale about a very large Horror.  
Or is it!*

# The Day They All Came Back

**By Avram Davidson**

**M**RS. JULIA DENNISON had put in a rather hard afternoon, canvassing for the League of Women Voters. She felt that until tomorrow she never wanted to hear another word about The Issues; what she wanted to do was go straight to the sunken fireplace in her living room, sink down on the step, pour herself a premixed (she had mixed it herself) martini from the thermos, and just sit there and sip it and welcome and be welcomed by Tawney, her cockapoo dog. A fresh breeze alerted Julia to the fact that the french windows were open, which should have been shut; and where was Tawney? She next saw *Them* — whoever *They* were — and *They* were squatting on the step by the sunken fireplace, chewing and eating something grilled, and it did smell good. Besides the grilled smell, there was another smell — had Tawney disgraced herself? All this passed like a flash through Mrs. Dennison's mind; next she realized that *They* — whoever *They* were — were all dirty and all mother-naked, and that, lying carelessly as a dropped glove, turned almost inside out and all

bloody, was a skin with a flash of tawny hair showing at one end; and then she fainted dead away.

Helga had long had her First Papers, and not long to go before she got her Second Papers. It was a nice job she had with the Johnsons, and a nice room in town. Money she sent home, and she had already bought herself a small automobile, a color TV set, and a Polaroid camera. She was still muttering angrily when the Johnsons returned. "What you think," she burst out at once; "what I saw, a kangaroo eating the hicc-plans; I take he'm a picture and I hit he'm mee't mine purse. He go away porty queak. Look, see." Mr. Johnson, who had made nothing of all this, took the offered snapshot, described it to his wife as she put her things away. "This is the house, all right," he agreed. "Cocktail, Johnson?" asked Mrs. J. "No, thanks, dear . . . and this is the ice plant, all right . . . out-of-focus again, Helga! —Yes, dear, I will have that cocktail after all." She brought it to him. "You sound funny, Johnson," she said. Don't tell me there really was a kangaroo? Where would it come from? There's your drinky, dear." He thanked her. "No, it's not a kangaroo, dear. As you say, where would it come from? The Neighborhood's going to hell." He downed the drink in two gulps. "It's a duck-billed dinosaur, dear —Dividend?"

Major Watson had put some of his own money into returfing the green, and it was quite a shock to him, all the damage the red wooley mammoths did before fleeing into the swamp half a mile off, where, once all that weird noise was traced, there was still a strong, rank odor in the air, but —as, twenty-seven minutes after everything began, it invariably proved —no bodies, living or dead, of any intruders were found. "And the goddamned Eastern Liberal Establishment wants to disarm us," the major concluded. "You saw what I did with my elephant guns; you *all* saw it. Well, where're the *bodies*; tell me *that*? Not even a head to mount; so much for your *ecology*. I'll be fine in a minute."

Mr. Etuala Ntabe, famous voice as melodious as ever, said in his interview at the airport, "No, no, nothing to do with it, I tell you, nothing at all to do with it. I appreciate everything your splendid chaps have done, trying to get me the role of General Lee in the television series; it is simply that I have decided to resume my very well received lectures on the Lake

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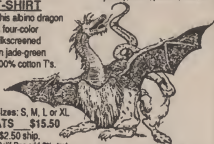
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Poets at Nyamanyama University College. Besides the point that those other events — well, they simply do not occur in my country; they simply do *not*. Government does not allow it; General *Mwasa* does not allow it. I tell you it had a head large as six crocodiles. Is that my plane they are announcing? Must run."

... But all of this was of little use to Mrs. Pritchard when, about to enter the motel inside of which was waiting for her a man considerably younger than Dr. Pritchard, she was taken instead by a tyrannosaur.

The 193 daring smash-and-grab raids attributed to the notorious Baby Bandit Couple diverted public and private attention the following week.

*All we can tell you about Wennicke Eide is that she lives in Norway and has had fiction in the critically acclaimed book WOMEN OF DARKNESS. The urban nightmare described in "Blue Angel" is both powerful and disturbing; it is the work of a major talent.*

# BLUE ANGEL

**By Wennicke Eide**

H

E DIDN'T SAY OR DO anything alarming. On the contrary, he held her arm

supportively when her high heels caught on the rough floor; he opened the door for her, stepping back politely to let her through. When she unzipped her jacket, he took it from her, hanging it neatly on a hanger. She stepped back, turned to face him, lips pouting in a small, seductive smile, and saw his eyes.

Crazy eyes; feral eyes; gleeful eyes bright with anticipation, eyes that stared without seeing her, intent on the invisible enemy just behind — or, perhaps, inside — her, an unknown tenant within her body, visible only to him. His pale hands were strong and bony, large-knuckled and with prominent tendons; they hung limply, only the fingers animate, curling and twisting with a restless life of their own.

She took an involuntary step backward. He smiled. The door was behind her. She thought of running; her feet flexed tentatively inside her

tight, spike-heeled shoes. His smile grew wider. She could almost hear his thoughts in the small, silent room: Run, bitch, run; I'll enjoy catching you!

But she had been disciplined early. He had already paid her. A tight roll of bills rested in her bra; an unspecified number of hours of her life belonged to him.

He saw defeat in her eyes and stepped back, one hand beckoning her. She followed. His hand indicated the floor, an abrupt motion like a command to a dog.

"Kneel!"

She knelt.

Humiliation was a favorite with many johns. She went through the appropriate pantomime, her thoughts far away as she worked. Breathing hard, he grabbed her hand; she heard the sick crack of her finger being broken with abstract surprise, a long, cool moment of suspended emotion before agony set in. Even then, she didn't scream; not until she saw his glazed eyes, and his knife, and felt the ice-cold metal searing hot on her flesh.

Her own blood was bright against white flesh. In desperation, she wished she had drunk the pint of liquor hidden in her purse; it would have dulled the pain. She hadn't counted the money; had he paid for murder?

The pain. She screamed; screamed; knowing nobody would hear, voice hoarse and dull with hopelessness, she screamed.

"Scum! Sadist! Out, creep, before I nail you to the wall with your own knife!"

A deep voice shouted loudly in the reddened room, drowning the sound of her own screams reverberating deafeningly inside her skull; there was a sudden absence, a heavy weight gone from her chest; the mattress lifted. The sound of running footsteps receded. A door slammed.

She knew he was gone; the small room no longer vibrated with the oppressive atmosphere of his violence. No new agony was added to the volume of her pain, and her clenched muscles loosened in the relief of his absence.

Red-streaked darkness held her and then let go. She lay in a sodden nest of blood and urine and did not care. Her body throbbed, but the absence of the sharp blade was what mattered. Had the door locked? She opened swollen eyes.

A huge, dark figure was outlined against the light, his massive

shoulders blocking the room from her view. Abused muscles tightened in terror once more, bringing new agony; she gasped. Hearing her, the figure turned to face the light, hands open, empty, peaceful palms gesturing her to be calm.

She took a deep breath. Reassured, pain once more receding as her body relaxed, she looked more closely at the man beside her.

His size and extreme pallor gave him a menacing appearance, which was belied by his tired, sad eyes and melancholy lips, which lifted, under her gaze, in a faint smile. Dark hair and stubble underscored haggard, blue-shadowed features; behind his left ear, half-hidden by hair, gaped a dark hole surrounded by bruised, purpled flesh.

Eyes widening in recognition, she fled backward on the bed, hugging the stained bedclothes close.

"Blue Angel," she whispered, half question, half dread.

He smiled at her.

"Sophie?"

Daddy's voice, a crack of light from the opening door across her dark room. She stiffened beneath the bedclothes, her heart still. Heavy footsteps, coming closer. She curled into a tight ball, arms entwined and face hidden, her nightgown pulled protectively between her legs, gripped tight in small fists.

The edge of her bed sagged beneath his weight. His warm palm brushed her naked arm, bringing goosebumps to her skin. She held her breath.

"Sophie. You're not asleep."

His voice was deep and sure. The bed creaked. She released her held breath in a long sigh, surrendering to the large hand that was patiently opening her closed fists, releasing the nightgown.

Mama, why do you go out at night? Leave me here with him? Don't you care? Don't you love me?

Sophie pressed her back against the wall of the Greyhound station. The city towered above her, sky-reaching stone and concrete and steel; bright lights and roaring traffic assaulted her senses. Masses of people thronged the sidewalk, sometimes bumping her in their hurried passing; nobody apologized.



She clutched her stuffed schoolbag to her chest with both arms, filled with wonder and dread. Rough-looking men with dirt-seamed faces and shapeless coats huddled; wild-haired women with shopping carts and dead eyes muttered threateningly when anyone came too near; young women with short, tight skirts and spike heels posed in doorways or pranced fearlessly through the traffic to waiting cars; young men with old eyes and many gold chains moved like large, graceful cats, looking her over as they passed.

Sophie knew them from television: bums and bag ladies, hookers, pimps, probably junkies, too, though nobody seemed to be acting more peculiarly than all the others. She wanted to ask about a cheap hotel or the Y; she wanted to find a different neighborhood, streets where women shopped and children played and ordinary men returned from work; streets with small shops that had "Help Wanted" signs in the window. But she knew that she couldn't betray her ignorance here; and if she just started walking, she might end up anywhere: Skid Row; Harlem?

With relief, she suddenly saw an older, well-dressed man approaching. His coat was expensive-looking, his shoes shined; he had silvered hair, laugh lines around his kind blue eyes. Hesitating, she took a small step forward. He stopped, peering kindly at her.

"Can I help you, child?"

When Sophie became too old to cater to the pedophile friends of the kind-eyed old gentleman, she was sold. She was eighteen but looked younger, except for her eyes.

Batman beat her when the money was short, but he was not a cruel man. For the first time in her life, she had sex with men not twenty years her senior. Walking the streets with the other girls from Batman's stable, she had some control over which clients to accept. The older girls warned her away from known creeps.

When Batman was killed by a junkie, Sophie had had a year of relative freedom. Batman had taken all the money, but it had passed through her hands first, giving her an idea of her own commercial value. She was determined not to return to somebody's locked room.

She approached the pimp she had chosen as he stopped his Lincoln to collect. With lowered eyes, she offered him her night's earnings. He stood still. She could feel his eyes on her, critical and calculating. He put one

finger under her chin and lifted her face. She met his eyes. When he got back in the Lincoln and beckoned to her, she opened the passenger door demurely and sat silently, hands in her lap, knees neatly together.

Ryan was a large, handsome man with flashing blue eyes and dark, curly hair. In his bed, Sophie experienced passion. It changed her. She strode the streets confident in the power of her attractiveness; she made a lot of money, waiting proudly each night to turn the thick wad over to Ryan. She was his bottom lady.

In bed with a john, Sophie closed her eyes and let her mind drift while her body made the right motions. She didn't pretend it was Ryan; there was no need. A john didn't really exist; his body did not touch hers in any way that mattered. He was not real. Turning tricks was simply a job; she was a skilled worker.

"Come," Ryan said. "You worked hard last night." With a satisfied smile, he patted the pocket that held his money roll. "Let's go eat and hear some music. You deserve a night off."

Sophie lowered her eyes, afraid to show Ryan the happiness welling in them, threatening to overflow. For a moment she was afraid. She didn't trust generosity. In her experience, kindness had a price tag. And the payment of previous debts had revealed areas of vulnerability within, soft, exposed places that hurt, and bled.

Timidly, she touched the warm flesh of his arm. He gave her behind a light smack.

"Go get dressed," he ordered.

"Yes, Daddy," she whispered.

In the exotic restaurant of the new hotel, they ate spicy, strange-flavored foods. Ryan chose for them both. Sophie picked at her portion. A trio played jazz in the dark-walled, thickly carpeted bar. Ryan had several drinks. She had one glass of wine. She stayed close to Ryan, trying not to notice the bald, paunchy man whose lizard eyes were undressing her lingeringly.

She hoped they would leave soon. When Ryan emptied his glass and set it on the bar, she looked up expectantly. He smiled at her and got up. When she started to follow, he laid a restraining hand on her arm.

"Looks like business," he said, eyes indicating the bald man. "I'll see you later."

She kept her eyes firmly lowered when a pair of thick, dark-trousered thighs slid onto Ryan's empty stool.

"Wine?" a raspy voice asked. She nodded.

"Sophie!"

Ryan's voice. Struggling from sleep, she sat up in bed. He stood in the doorway, a small, shiny object dangling from his hand.

"Got a surprise for you!"

Sophie had never liked surprises. Standing in a small, blue-carpeted room with the new key in her hand, she pulled her sweater close and folded her arms tight. One couch; one chair; one table; a counter and sink in one corner along with a minifridge and a hot plate; a view of grimy brick walls through dusty windows. Ryan was grinning at her.

"Like it? I found it specially for you. Your own place!" His grin was wide, but his eyes were calculating and cold, the eyes that had earned him the nickname Ice Man from the other girls in his stable; she had not expected that chill to touch her, Sophie, his main lady, his best money-maker, who loved him; why?

The night was humid. Her feet ached in the tight shoes. She had just come back from turning a trick, when Ryan's Lincoln pulled over. The car's interior was dark, and she had already put her hand on the passenger door before she became aware of the girl sitting there.

Ryan was waiting for the money. Numbly, she gave it to him. He pointed at the back door, and she got in. The new girl was facing straight ahead with only her long, shiny hair visible to Sophie. Ryan pulled up in front of the new apartment and waited for Sophie to get out. In the light from the open door, she saw the girl's clean profile, smooth baby skin, one limpid eye. Very young. Very beautiful.

Sophie closed the door softly and walked upstairs alone.

**S**HE SAW Ryan once or twice a week. He came to her place to collect. If she had made good money, he stayed. If not, he fixed her with his icy stare and left without a word.

She didn't make as much money as before. She no longer felt beautiful.

Ryan's warm flesh failed to heat the new, cold place within her. In bed, she clung to him, pressing as much of herself against him as possible,

craving his warm surfaces. But what had been abandonment and passion slowly became a series of exercises designed to please him, a desperate demonstration of skill. One afternoon as she was working over his passive body, eliciting small moans of pleasure, she found that her mind was drifting idly the way it did when she turned a trick.

Then Sophie was busted. He was a new cop. Sophie accepted his money and found her fist held in an iron grip; his wallet flashed open, and she saw the shield.

She had never been busted before. Staring up at him, she felt panic rise thick and high in her throat, choking her; she gagged, gasping for air, feeling her legs turning weak. The next thing she knew, the big cop was holding her head as she vomited bile into the rust-stained sink, her drooping body supported against his. He wiped her mouth with a clean handkerchief and sat her on the bed.

There was no ice in his eyes when she was able to look at him; nor could she find desire. His dark eyes held compassion: an emotion nobody had offered her before, which alarmed her and made her feel vaguely shy. She looked down. When he sat next to her, she waited for his orders, his touch, but his hands stayed between his knees as he began speaking to her in a soft, deep voice.

"Have you worked the street long?" Not waiting for an answer, he continued, and, in spite of herself, she listened, taking in the timbre and emotion of his voice rather than his words, her body leaning slightly toward his large warmth without touching.

"Life is cruel on the street. There's no safety and no pity. You're alone. Nobody looking out for you. And no matter how tough you think you are, no matter how careful, sooner or later you meet the one who'll hurt you."

His voice was thoughtful, slow; he was staring straight ahead without seeing, hesitating over the words as if he were talking to himself rather than to her.

"Or the one with AIDS. Or the one with the dirty needle. The bad fix. Do you shoot?"

He took her arm gently and pushed her sleeve high, looking for puncture marks, then did the same with her skirt and studied her thighs. His touch was impersonal, with no hint of sexual play in it; she suddenly felt like a small girl and drew her thighs primly together, warmth rising on her neck.

"No marks on you." Tipping her head back with one finger under her chin, he studied her eyes and nostrils. "And you don't snort."

Looking suddenly into her eyes instead of at them, his own eyes near and personal and concerned, he smiled at her, a slow, lovely smile to which she responded impulsively and with warmth.

"You're clean. And not just pretty, but presentable, too. You could find a job. Why are you in the Life? Why crawl in the dirt when you can walk?"

When a john asked that question, he expected a story that would magnify his desire; she had several in stock, tailored to the basic male fantasies: the one about the innocent little girl, bashful and waiting to be instructed; the one about searching ceaselessly for the right man to give her satisfaction; you? — yes, of course, you! And the one about the insatiable girl.

Sophie had almost forgotten the circumstances that had led her, step-by-step, to her present life. She was flesh; she was the object of men's desires, a vessel for their use; it had always been that way. It was her function. How could there be a reason?

Confused, she looked down, away from his questioning eyes, but inside her the word "why" resounded faintly, a tiny echo, soft but insistent.

Later, over coffee in a small bar, she told him a little of her history. Her words did not come easily, but his patient questions implied an interest in her person that nobody had shown her before. Unused to talking about herself, her answers were brief and unemphatic. Unexpectedly, the telling made her feel shame. Though he hid it well, she could sense his pity.

Sometimes, in her lonely apartment, when she was not sleeping or staring mindlessly at the television, Sophie played the game of "why." "Why" became "when" and "whom." Slowly, gradually over months of painful recovery of repulsive memories. Sophie reconstructed her past.

On the street, she found herself trying to avoid older men, though they were more generous than the young ones. But she could barely force herself to endure their touch. And once or twice, while a john was thrusting into her, her mind failed to drift placidly away from the room and the bed and their bodies, filling instead with loathing, and barely containable anger.

One evening, Sophie thought she saw her father on the crowded side-

walk. He seemed somehow thinner and smaller than the man she remembered, and much older; it had been many years. She couldn't remember exactly how many.

A frozen statue in a doorway, she watched his progress. At no point did she get a clear view of him; there were always other people between them. She wasn't sure.

When he disappeared in the crowd, she still wasn't sure. But she was scared.

Angelo Azzuro became a familiar figure on the street. The hookers, generally hostile to the police, respected him. Never malicious or abusive, like many of the vice cops, he treated even the toughest whore with respect. Affectionately, they nicknamed him Blue Angel.

Blue Angel did his job, but the hookers knew that he would help them when he could. He had actually talked a couple of young girls into quitting and going back home. And a number of whores had been quietly taken home instead of to the station if the Blue Angel was alone, and knew that sickness or other problems aggravated the woman's situation.

He hated the pimps, though. As he would go out of his way to help a hooker, so he would make every effort to create problems for her pimp. He busted pimps when he could; and, given the opportunity, a secluded spot and no witnesses, he had been known to use his fists and the butt of his gun.

Sometimes the other girls teased Sophie, calling her the Blue Angel's lady.

She didn't see him often, of course, though she was always aware of his presence on her street and knew the awareness was mutual. But once in a while, when nights of bitter weather made the streets uncomfortable, and business was slow, the Angel would stop on Sophie's corner and wordlessly open his car door; she would get in, and he would drive to some quiet, dim bar, where they had coffee and, perhaps, something to eat while talking quietly together.

Their conversations were never strained or uncomfortable, though Sophie sometimes found herself crying; she was no longer ashamed to show him her emotions, and her tears flowed freely along with her words. Piece by piece, she gifted him, and herself, with her memories.

Sometimes she was silent, looking at his calm face, his somber eyes,

wondering what life had been like for him. But she didn't feel free to ask.

If Ryan knew about Sophie's meetings with Angelo, he did not mention it.

She didn't see Ryan often. In addition to the smooth-faced young girl who had first usurped her front seat, he now had two more new girls. They needed a lot of his time.

Sophie no longer missed him. Alone in her apartment, she felt a fragmentary freedom: for a few hours each day, her body and her mind were her own. Ryan's presence was an intrusion. Sex with him demanded more of her than sex with a john: he knew hookers, knew her; she was forced to play a very convincing part; the thought of him finding out that she was playacting, that his touch left her cold, terrified her.

When Ryan was with her, Sophie had to struggle hard to suppress the small, echoing "why."

On a cold, bitter midwinter morning, at the end of the longest, darkest night of the year, Angelo Azzuro was shot dead in the street. Two days later a couple of black junkies were arrested and charged with his murder. But word on the street was, it had been a setup.

The hookers whispered among themselves. The Blue Angel hadn't been shot by a junkie. He had been shot by a pimp.

Sophie stayed in her apartment, waiting for the knife wounds to heal. Ryan came by once, shaking his head in silent commiseration, which, however, did not reach his ice-blue eyes. He did not reappear, but sent one of his girls over every other day with fresh groceries.

Sophie did not miss him. After clumsily bathing and disinfecting the numerous long but fairly shallow cuts, the deepest of which were two clumsily hacked letters on her right breast, *W H*, perhaps the sadist's initials, or the first two letters designating her profession, she lay on her bed in a soft, clean robe, staring at the brick wall beyond her window. Her mind drifted drowsily. She was not at all surprised when she became aware of the Blue Angel's presence.

For several dim days of wintry, grime-filtered sunlight and dusty lamp-light, she rested and watched the Blue Angel. Though she knew he was dead, he did not alarm her. The death-colored hole in his neck became

comfortably familiar; and his pallor, which matched and accentuated her own, became the norm, making the wind-flushed cheeks of her young stable sisters seem unnatural and extreme.

He rarely spoke. Muted traffic sounds filled the comfortable silence between them, broken only by flushing water or the creak of Sophie's bed.

Sophie was extremely tired. The rebellious "why" in her mind was temporarily stilled; her painfully retrieved memories were dreamlike in their tenuous presence, less real than the patient ghost mutely witnessing her slow recovery. His presence held her nightmares at bay; as he had prevented her mutilation and killing, he now barred the monster from her dreams.

In Sophie's first week of recuperation, her legs would scarcely carry her. The young girls tended her gently but swiftly, barely concealing their impatience with her slow, thoughtful movements. She lay limp, watching Angelo standing, hour after hour, hands on his back, his attention divided between the sun-blotched brick wall and her. Perhaps he rested on air; or perhaps he no longer had substance, a mere image shimmering in the air of her bedroom. The girls did not seem to notice him, but Sophie could not swear to his simultaneous presence: he was there when she heard their light footsteps on the stairs; he was there when the door slammed impatiently behind them; but was he actually there while the girls were present? She didn't remember.

When Sophie felt better, once more able to eat unaided and clean herself, the visits ceased. Nor did Ryan reappear; presumably, he was waiting for her to resume her work on the street.

Sitting up in bed, once more master of her memories and filled with questions, Sophie smiled at Angelo.

His voice had changed, weakened by an absence of emotion rather than volume, a colorlessness, a lack of inflection. Where the sight of his wound had not stirred her, his voice roused her to pity.

But she also wondered whether his altered state included new and terrible powers, or merely left him a substanceless shell.

His dark and desolate eyes, so much more expressive than his flat voice, stared into hers.

"You're not afraid of me?"

She shook her head.

Angelo liked to watch her move. Sophie was aware of his eyes follow-



ing her around the apartment. She never saw him walk from bedroom to front room to bathroom, but wherever she went, he was, too; she'd look up and see him leaning against the wall, or filling the doorway with his dark bulk, watching her.

She was flattered at first. The bruises on her face were fading, and she began using makeup again, softly flushing her cheeks and accentuating her large gray eyes. She pulled sheer panty hose over her long legs and wore brief, silky gowns. Let the poor ghost look; let him enjoy what he could. She felt a fine, keen, daylong high; she moved as to music.

While still alive, Blue Angel had been the first person in Sophie's life who didn't use her. And in her extreme need, he had been the protector standing between her and screaming death. Safety filled her rooms; and gradually, his bulky, dark presence became a tantalizing riddle and the center of her days.

Now totally aware of him, of his mystery and his maleness, which had become an irresistible combination, Sophie woke and stretched delicately beneath his dark stare. Her reclaimed beauty confirmed, she walked slowly and deliberately to the bathroom, leaving the door ajar; she used her best table manners, moved through her small rooms with hips loose and swaying, displaying her long, gleaming legs at provocative angles.

But the desolation in Angelo's eyes did not wane. He kept his distance, slouching dark and somber in a doorway or across the room. He was waiting. This time he wanted something from her. Reluctant to speak, he was, perhaps, ashamed of his dead voice? His muteness defeated her own lack of ease with words. She could not ask him. But bodies had language.

One day she touched him. An innocent hand on his arm, but he pulled violently away, suddenly staring at her from the opposite side of the room. His eyes held hers, dark anger there, and yearning; an abrupt motion of his hand, and she felt his warning clearly, as if spoken: keep away!

She needed no warning. Scrubbing her hand surreptitiously in the bathroom, back firmly to the closed door, she no longer wanted his touch, nor his eyes. But the memory of that touch did not fade: his arms an icy, vaporous cloud of thick nothingness through which her hand had sunk unimpeded, a substance as yielding as water, yet with a cohesiveness that made pulling back out a huge effort. Shuddering, she remembered her hand as seen through that dark taint, ephemeral white flesh through which her thin finger bones gleamed two-dimensionally, a pale X ray.

His otherness suddenly loomed large in her mind. Facing her expertly made-up self in the mirror, she slowly dried off the hand, rubbing until the skin smarted. She rolled the sheer panty hose down her legs, costume of the naive, silly child she had been these past weeks. Not a man, that, to be enticed by her looks and her touch; a man's ghost; spirit? Demon? Why had he saved her? Why did he stay?

She knew he was still there. His icy presence in the next room seemed to seep beneath the door and enter her, leaving a deep chill that did not lessen when she wrapped herself in her warmest robe and added several blankets. She owed him. Favors were never free.

**T**HERE WAS an impatient knock on the door. A thin, strident girl-voice shouted through the narrow opening.

"Ryan is waiting for you in the car!"

Sophie was no longer wearing slinky tights and brief nylons. She belted the thick robe tightly and hurried downstairs. Ryan's cold eyes noted her unbrushed hair and bare feet before coming to rest somewhere next to her unpainted face.

Wordlessly, he held out one manicured hand, palm up, fingers rubbing briefly together in unmistakable command.

It wasn't love, not anymore. Or loyalty. She no longer thrilled at Ryan's smile and his touch, or the sight of his shoulders and panther grace; she didn't even think of him by his true name anymore, but by the nickname given to him by his whores: Ice Man. Nor was it fear, though she knew what happened to a rebellious whore.

No. It was habit. Obedience training. She knew, and avoided the thought as she carefully averted her eyes from Angelo's and quieted the "why" in her mind to an almost inaudible murmur, concentrating on her makeup. From the mirror, her face stared back at her, bland and impassive with cool, distant eyes: a whore's face.

At least she had a profession. She was good at it. What else was there?

She circled the Blue Angel's bulk carefully, repressing loathing at the memory of his chill nothingness. Her high heels on the steps sounded oddly cheerful. For a moment she felt free, and in charge of her destiny.

She smiled invitingly at the first cruising car. Only as it slowed down,

and a stranger's face peered at her through the opening window, did she realize that the face of her recent attacker was a complete blank in her mind.

Ryan fingered the thin wad of money disdainfully. Sophie looked silently at the littered sidewalk and her own dusty shoes. The slam of the car door was loud in her ears. Slowly and stiffly, she began the walk home.

Dawn over the city was smudged and grimy, highlighting crumpled and stained Styrofoam and paper and plastic that thronged the gutter, shifting in the sour breeze. In a sudden panic, Sophie ran up the steps, her key trembling in the lock.

He was there. She had been sure he wouldn't be; one desertion deserved another. But his gloomy shadow leaned, as always, on the far wall: still her savior; her eyewitness.

"What did he look like? Angel, please, I don't remember; what did he look like?"

Their eyes met and held, a timeless, dark look; she suddenly saw him not as manshape but cop, and thought of the things a cop had to do. The obvious answer was there in his eyes, reflected, she knew, in her own, and the sound of his unemphatic voice was anticlimactic. Nevertheless, she trembled at his words.

"What difference does it make? He's just one. Plenty others out there."

He moved his shoulder in a tiny shrug, and she lowered her eyes. When she looked at him again, he had his back to her: looming darkness, facing the window.

Sophie's nightmares returned. In her dreams, her attacker was faceless, and the knife was huge and shiny, reflecting the room and the two of them; in its steel, she met her own petrified eyes. As she awakened to the sound of her own scream, his face approached, growing in her vision, solidifying into the intimately known features of Ryan.

She cowered, clutching the blankets; but no one was there. She was alone, even the Blue Angel absent. Wiping her eyes, Sophie sat up in bed, surveying the empty room. The bathroom was empty as well, and the front room. A stripe of sunshine crossed the floor to touch her wrist, a tiny, warm caress. Sun. Solitude. A fleeting sensation of freedom.

Humming, she made a pot of coffee and brought it back to bed. Sunlight and her movement made the dust dance. The mug was hot between her palms. She savored the bitter liquid. Her mind was clear. She made herself think it. To leave Ryan. Quit the street.

Once she had articulated the words in her mind, she felt cool and rational and in control. Her thoughts were her own. She was not accountable for them.

Choices. Limited ones, and perhaps not, finally, hers alone to make, but certainly hers to contemplate.

To be one's own. Answerable to no one. Nobody's property. To say no. Turn and walk away. Free.

Refilling the coffee mug, Sophie drank, eyes slitted against the steam.

Ryan. Her owner. Her onetime lover who wasn't her lover anymore, but a cold user. Using her. Binding her with the code of the street as he had once bound her with the pretense of love. A liar. A heartless and dangerous man, who would not willingly let her go.

Angelo. Not a man, but no less dangerous; infinitely colder. And more frightening, because she had no idea what he wanted from her. Alive, he might have saved her, though she saw clearly that it would have meant exchanging one owner, one set of rules, for another. Resentment filled her, and then the familiar fear: now, what did he want now?

And there were the johns, her faceless nightly partners in the pitiful exchange of cash for faked love. All of them potential slashers; potential killers.

No retreat, either, from an intolerable present; retreat where? Home to Daddy's loving arms?

No freedom. Only the whore's flight, the half-hour skyride courtesy of the cooked white powder. Some took the easy way out, riding too high, too fast, until their heart burst. And there was the tub of hot water, bright razor against slim wrist.

But she was going to live! In sudden fury, Sophie flung her mug wide and hard. The coffee slapped the wall, brown stain spreading, running. In the bathroom she studied her own stormy eyes, while enhancing them with deep shadows and thick black lines.

Turning, she saw Angelo's great dark bulk in the doorway, immobile, leaning patiently, watching. Bare feet slapping the tile, she marched the few steps separating them and stood tall, face inches from his.

"Why are you still here? What do you want from me?"

Silence stretched between them, almost a tangible in the small, closed room. Taut with angry defiance, she nevertheless found herself responding to his slow, sweet smile, his familiar shrug.

"I'm waiting. That's all."

Hot eyes searching his cool dark ones, softened by the familiarity of that exchange, of the old, unspoken accord between them, she knew that was all she was going to get. Turning away, she busied herself with clothing and hair.

Waiting. Waiting for what?

Independence required money. Sophie went to work every evening, but did not appear at the designated corner to hand over the night's take. She worked hard, avoiding the usual coffee breaks in the company of other hookers. She did not want their gossip, or their advice; she was working toward freedom.

Urgency straightened her shoulders and gave spring to her step. It seemed to attract the johns. Before entering a car, she carefully studied the john's hands, wary of strong, bony white fingers with a restless life of their own.

Ryan would come, she knew. Painstakingly, she removed a tile in the corner behind the bathtub and hollowed out a small space in the rotting floor underneath. The cache accommodated a surprising amount of bills. She glued the tile back in place with nail polish and scrubbed the floor to eliminate all traces of her work.

Midsummer strangled the city in grimy humidity. The hookers sweated on hot sidewalks, eager to enter the large, air-conditioned cars.

Night brought scant relief. Sophie's feet in the high-heeled sandals hurt as she walked homeward through the stale air, a faint, rosy sheen of dawn promising new heat. The roll of bills between her breasts clung sweat-sticky to her skin.

From a distance she recognized the car parked in front of her door. Ryan lowered the window as she approached.

She hadn't seen him in weeks. Inside his air-conditioned car, he seemed paler than she remembered, and older; deep vertical lines bracketed his mouth and cleft the flesh between his eyes: cold ice eyes, unchanged, regarding her critically.

She forced herself to meet those eyes squarely, refusing to lower her own, watching while annoyance changed to displeasure to smoldering anger.

"Sophie!" His voice was the voice of command; involuntarily, she flinched.

"Been expecting you." His open palm a demand. "You owe me."

Holding herself together with all her newfound determination, remembering long hours of painful self-discovery as well as endless hours and nights and years of toil, of unwanted sex, of violence, one hand going unconsciously to the knife scar on her breast, she faced his growing fury, keeping her head high and her eyes level.

"No."

She shook her head, her voice loud and clear, the "no" echoing through her body, becoming one with her heartbeat and the rhythm of her heels as she turned from him and pushed the street door open, ascending the steps without hurrying, not looking back.

No point in locking the door. Sophie kicked her shoes off and leaned against the wall, waiting for the sound of Ryan's footsteps.

The shadow was a sudden monstrosity on the wall. Sophie shrank back. From below, she heard the slam of the big Lincoln's door.

Angelo's face was ecstatic. Looming above her, head bent to hers, dark eyes glistening, his arms lifted, encircling but not quite touching her. She pressed herself to the wall, one hand lifting to push him away, then falling back without touching; she shuddered.

The sight of her face seemed to sober him. His hand lifted, palm open, in a soothing caress perilously near her cheek. She slid sideways, evading, ran on trembling legs across the floor.

He took a step forward, stopped, clearly controlling himself with difficulty. His expressive hands made the same gentling, open-palmed gesture that they had once made to a terrified whore in a bloodstained hotel room; the same tentative smile softened his pale mouth. She recognized and remembered; between them the room was quiet, and she felt her own lips responding.

He waited for her to stop trembling. Happiness illuminated his face; the small smile widened, and his eyes never left hers.

"Cara."

The soft Italian endearment sounded pathetic in his flat voice. Down-

stairs the street door clicked shut.

"I've been waiting so long. For you to find strength. To say no to him."

The change in him went deeper than a happy face. His eyes lived. His posture was different: no longer a patient slouch, but a tense, alert springiness, light-footed and sure, so much like the living Angelo she remembered that she felt a sudden lump in her throat.

"Now you've chosen, we can be together at last. Sophie. Love."

Her eyes widened, horrified at his words, as they both heard the sound of ascending footsteps.

Perhaps deliberately misreading her look of horror, he took a step nearer, hands gesturing her to be still.

"Don't worry, Cara. Nobody's going to hurt you again."

With a final, reassuring smile, he turned his broad back on Sophie and faced the door.

Ryan was framed in the doorway, springy hair haloed by the golden hall light, ice eyes in pale face brushing her lightly, then fastening on her companion; the fury in them then; the venom in his low voice.

"So, bitch." Eyes never leaving the other man. "Got a lover. Spending my bread. Know what I'll do to you."

No emphasis in his voice, no emotion; when Angelo spoke, Sophie thought that their voices were just alike, flat and dead, at complete variance with the violent words.

"You won't touch her."

Ryan's stance sharpened; he was pointed at the other man like a dog, like a weapon, mouth tightening, dawning recognition in his eyes.

"You supposed to be dead."

The brief sentence, spoken slowly, thoughtfully, seemed to clarify something. Watching him, the man that she knew so well, Sophie saw no surprise, no hesitation, no weakness, only the rebirth of old anger and renewed purpose.

"Oh yeah."

Angelo smiled. He was shifting lightly on the balls of his feet, arms curved away from his body, hands ready. Ryan's body was tightening like a spring; watching them, Sophie saw mirror images of hate, adversaries meeting once more. She felt ill.

Ryan's hand was inside his coat. She knew now. On last year's longest night, he had shot Angelo Azzuro dead. He was going to do it again.

One of Angelo's hands went briefly to the back of his head, to the bullet hole; Ryan smiled tightly. Could a man be killed twice?

Shrinking against the doorway, all determination gone, Sophie knew she owed double, triple, impossible to repay: the man's life. She had been spoken for, unknowingly, one year ago. Freedom was no longer possible.

Waiting, had Angelo known the inevitability of her choice? Knowing, as she now did, that she had caused his death, there was no longer any question of leaving him. Perhaps there never had been.

Ryan's gun shone in the light from the doorway. He was grinning.

"Where this time, sucker? Head again? Heart? Balls, maybe?" Ryan's hand lifted.

Angelo's hand was black motion too swift to see; Ryan's eyes widened, ice cracked by fear as his hand sank in deep, wrist and arm gulped by nothingness, palely seen through the darkening void that was Angelo's flesh.

Sophie clung to the doorway, bile overflowing her mouth, bitter, hot; she gagged, bending her head. A shot rang. The bullet passed unimpeded through Angelo's substanceless body. Its impact slammed Sophie upright and held her, straight-backed, against the doorframe for an endless minute.

The stain on the carpet was growing. Mouth acrid-tasting and dry, Sophie let herself sink slowly to the floor, felt wetness beneath her thigh as she sat, head leaning, eyes drooping, a chill beginning deep in her body in spite of the heat.

She felt herself receding through a deepening haze, watching dispassionately as the two large, dark shapes across the room fell apart, one still wholly visible through the shadowbulk of the other. The living one was moaning, clutching his hand; thin white bones gleamed.

The solidity of the doorframe against her back was the one real thing in the fading room; she moved one sticky, wet hand from her numb chest, very slowly, to touch the firm wood.

A hulking dark form blotted out the light. A light, unemphatic voice repeated her name.

"Sophie. Sophie. It's all right, baby."

Pale face, dark and desolate eyes just now gleaming with new hope, new life; big hands reaching.

What did he want, then? Love, he had been waiting for love; what else?



They all wanted love, their own version of it, all the ones who had used up her choices, replacing them with their own.

The man by the door made a small, pale sound. Sophie tried to speak; a bright bubble burst in her mouth and spilled pinkly across her chin, strangling the "no" in her throat. Its echoes filled her mind uselessly: no, no, no, no. Shadows crowded the corners, small evil faces faintly visible, grinning at her.

His embrace was a searing chill, freezing nothingness sucking her in, spreading, drowning her.

*"Cara mia. My baby. My Sophie. Mine."*

Her body was icy liquid and brittle bone, no strength left in it to pull her life back, deny his claim. Weak water spilled down her cheeks; briefly, she tasted her own salty tears. His mouth found hers. His tongue filled her mouth; she gagged weakly, once, as his darkness flowed down her throat, continuing to descend.





# SCIENCE

ISAAC ASIMOV

ROYAL GAMMA

**W**HEN I was young I took poetry very seriously, but, of course, what they taught me at school in those happy, happy days had rhyme and meter and could be understood.

Thus, in Thomas Gray's "Elegy Written in a Country Churchyard" (1750), there is a famous quatrain that goes:

*Full many a gem of purest ray  
serene*

*The dark unfathomed caves  
of ocean bear:*

*Full many a flower is born to  
blush unseen,*

*And waste its sweetness on  
the desert air.*

How many young people must have mooned over these lines, thinking of themselves, tearfully, as the hidden gem, the wasted flower, the unappreciated bit of perfection!

I will not hide from you the fact that this thought sometimes occur-

red even to me. You wouldn't think that this would be possible, considering that everything I think, say, and do finds its way into my stories and essays and gets published. No one wastes less sweetness on any desert air than I do, you might well imagine.

And yet there is such a thing as sparkling, spontaneous wit, of which I am a true master, and it is rarely appreciated.

I was at a meeting of the Gilbert & Sullivan Society a couple of weeks ago, and we were community-singing from "The Sorcerer." The last song we sang was "Now to the banquet we press," and there was a short colloquy between the song-leader and the pianist as to the key. The leader said, firmly, "The song is in A-major."

I promptly called out from the audience, "When I was in the army I had an officer who was A-major."

And a silence like unto death fell on everybody, and even my

dear wife, Janet, looked at me with something akin to loathing. I was the only one who laughed. It was one more case of sparkling, spontaneous wit wasting its sweetness on the desert air.

I must admit that I try, whenever possible, to exercise some s. s. w. on the titles of these essays. For instance, in the Gilbert & Sullivan play, "Princess Ida," one of the characters is King Gama, a snarling, nasty misanthrope. The play starts with everyone watching for Gama's appearance, and the opening chorus begins:

*Search throughout the panorama,  
For a sign of royal Gama,*

Well, if you add an M to the royal name, you will find that those two lines represent, quite precisely, the subject of this essay, which I therefore call "Royal Gamma." And I bet no one appreciates that there's another batch of sweetness wasted.

The information available to us from the Universe reaches us by way of particles that stream from out there to down here, and these fall into two classes: 1) particles with mass and electric charge, and 2) particles with neither mass nor electric charge.

In the first category are such things as speeding electrons, positrons, nuclei and antinuclei. Of

these, the electrons, positrons, and antinuclei are few and, as far as I know, are of no great significance. The nuclei (mostly protons) make up the energetic cosmic ray particles, and I dealt with them in my essays "Out of the Everywhere" and "Into the Here" (November and December 1988).

The charged particles are, in any case, of limited value because, being charged, they follow a path that curves in response to the magnetic fields that litter the Universe so that we have no idea as to their point of origin.

The uncharged, massless particles are not affected by magnetic fields and, being massless, travel at the speed of light, so that they are affected only very slightly by gravitational fields. The result is that we can know their points of origin very well.

There are three types of massless particles that bathe us in vast quantities, and they are: gravitons, neutrinos, and photons. Of these, gravitons have yet to be successfully detected, and neutrinos, while detectable, are only barely so. Consequently, what it boils down to is that the major source of information that we receive from the Universe consists of photons.

Photons differ among themselves in energy content, and, until the early 1900s, they were thought

of as consisting of waves, with the wavelength decreasing as the energy content increased.

Going down the line of photons from those with the longest waves and least energy, to the shortest waves and most energy, we have: radio waves, microwaves, infrared radiation, visible light (red, orange, yellow, green, blue, and violet, in that order), ultraviolet radiation, x-rays and gamma rays.

Until 1800, the only photons known were those of visible light, and every bit of information obtained from the Universe was through the mediation of that light. In the early 1800s, infrared and ultraviolet radiation were discovered; in the late 1800s, x-rays and radio waves were discovered; and everything else came in the 1900s.

All the different photons are of informational value now. In fact, we have learned more through a study of radio-wave photons than would ever have been dreamed possible, if astronomers had been stuck with visible light alone. In this essay, however, I'm going to talk about gamma-ray photons.

Since gamma rays are the most energetic of the known photons, they can only be produced by very energetic processes. They were first detected among the radiations given off by radioactive atoms, something that was itself detected

only in 1896.

Some of the radiations were bent gently in one direction by a magnetic field, and they were called "alpha rays" from the first letter of the Greek alphabet. Other radiations were bent sharply in the other direction, and they were "beta rays" from the second letter of the Greek alphabet.

From the nature of the bending, it was clear that the alpha rays consisted of positively-charged, rather massive "alpha particles," while the beta rays consisted of negatively-charged, rather light "beta particles." It was not long before the alpha particles were identified as speeding helium nuclei, and the beta particles as speeding electrons.

In 1900, a French physicist, Paul Ulrich Villard (1860-1934), noted that some of the radiations emitted by radioactive atoms were not affected by magnetic fields at all. He called them "gamma rays" from the third letter of the Greek alphabet, and clearly they did not possess an electric charge.

The question was whether gamma rays were uncharged particles or uncharged waves. It was not understood at the time that every particle had wave properties and every wave had particle properties, and that you detected whichever one of these two aspects you were

trying to detect. As energy decreased the wave properties of photons increased in prominence; as energy increased the particle properties did.

Gamma rays are so energetic that their particle properties are easier to find than their wave properties are. When they were first discovered, however, no such things as electrically-uncharged particles had yet been detected, and so every effort was made to try to demonstrate the wave character of gamma rays.

In 1914, the British physicist Ernest Rutherford (1871-1937) succeeded. He showed that gamma rays could be diffracted by crystals just as x-rays could be, and by then x-rays were known to possess wave properties.

Since the gamma rays are even more penetrating than x-rays, they are, on the whole, of shorter wavelength and higher energy, but the two types of photons fade into each other. The least energetic gamma rays produced by nuclear transformations overlap the most energetic x-rays produced by electron collisions. Where they overlap, there is no real distinction between them except in the manner of their origin.

Gamma rays have wavelengths that run from  $10^{-10}$  to  $10^{-14}$  meters, so that the most energetic ones

have wavelengths only a hundred-millionth as long as those of visible-light photons.

In 1923, the American physicist Arthur Holly Compton (1892-1962) was able to show that very energetic photons, such as those of x-rays and gamma rays, possessed properties characteristic of particles. In that same year, the French physicist Louis, Prince de Broglie (1892-1987) showed that undoubted particles, such as electrons, had to have wave properties, and, in 1925, the American physicist Clinton Joseph Davisson (1881-1958) actually detected the wave properties of the electron.

From then on, physicists stopped speaking of waves and particles as though they were mutually exclusive and began to understand the subatomic world in terms of quantum mechanics.

Since there are processes on our puny little planet that are energetic enough to produce gamma rays, we can be pretty sure that, in the Universe as a whole, there must be gamma-ray production here and there on an enormous scale. If so, some of those gamma-ray photons must eventually reach Earth.

So they do, but there's a catch. Energetic photons reach the upper atmosphere first and, tearing through, do enormous damage to individual gas molecules, but, in

the process, undergo large changes themselves. For this reason, x-rays and gamma rays produced by cosmic events do not reach Earth's surface as such. Even after the existence of such energetic photons was known, then, their production outside Earth remained undetected until such time as human beings could send rockets beyond the atmosphere so that they could detect radiation while it was still speeding through the vacuum of space.

The American astronomer Herbert Friedman (b. 1916) began to look for x-rays in space soon after World War II, when V-2 rockets were used to fire instruments to record heights above the Earth's surface.

In 1949, he demonstrated that the Sun emits x-rays, and, by 1956, he showed that one source was the solar flares, energetic explosions that take place now and then on the solar surface. In 1958, while observing the Sun during an eclipse, he was able to detect x-rays being given off by the solar corona.

By 1963, the Italian-American physicist Bruno Benedetti Rossi (b. 1905) was able to detect x-rays from sources other than the Sun, and with that Friedman began a systematic search of the sky for x-ray sources and began to find them, too.

In 1961, the rocket "Explorer XI" was the first to detect the existence of gamma rays in open space. By 1968, the rocket "OSO-3" found that the Milky Way was a source of gamma rays.

With that, the search for gamma rays began, too. The heavens were searched systematically for gamma-ray sources. By 1972, a rocket, "SAS-2," prepared the first rough map of the gamma-ray emission from different parts of the Milky Way.

Such maps have their shortcomings. Typically, the gamma rays can be pinpointed only within a circular region some four times the area of the full Moon. The result is that of the gamma-ray sources that have been located, few can be pinned down to an actual object that can be seen by some means other than gamma-rays. There are too many possible objects within the circle. The result is that studying gamma-ray sources is like trying to look at things through frosted glass.

Right now, astronomers are working on a "Gamma Ray Observatory" that will weigh 17 tons and that, it is hoped, will some day be put into orbit by a shuttle craft. It will be designed to detect gamma rays over the full range of energies and to determine their point of origin with greater precision than is now pos-

sible. It should be able to pin things down to a tight circle only 1/60th the area of the full Moon. That will improve the sharpness of vision by some 240 times, clarifying the frosted glass enormously.

This is not as easy as it sounds. The more energetic the gamma-ray, the more pronounced are its particle characteristics and the more difficult it is to distinguish it from cosmic ray particles. The trouble is that the Universe is much richer in cosmic ray particles than in gamma rays, so that scientists are trying to detect a few fugitive photons smothered in a large array of all-too-similar charged particles.

Fortunately, the two types of energetic objects are not exactly identical. Each one produces changes that the other does not, and the Gamma Ray Observatory will be designed to reject any cosmic ray particles it detects and report only on the gamma rays — it is hoped.

But suppose we do locate gamma rays, study their energies, and pinpoint their places of origin. What can we possibly learn from them except that those photons are coming from there to here?

The answer to that is that we may learn some details of very energetic phenomena that we wouldn't learn much about in any

other way.

For instance, the most energetic phenomenon we are able to observe directly is a supernova explosion. It comes about this way.

Stars, to begin with, are mostly hydrogen. At the enormous temperatures and pressures at their core, the hydrogen fuses to helium, producing energy that keeps a star like our Sun shining for some ten billion years in fairly stable fashion.

A large star has a larger hydrogen supply than a small star, but the large star uses that larger hydrogen supply at so much more rapid a rate that it doesn't last as long as the small star's smaller supply does. The larger and more massive the star, the more rapidly it goes through the stages of stellar evolution. While our Sun may last in stable condition for ten billion years, a really massive star may not last longer than a few million years.

As a star ages, the core becomes richer and richer in helium. Helium, being denser than hydrogen, accumulates at the core and continues to compress and grow hotter. Eventually, it becomes hot enough to fuse to more massive nuclei, which in turn eventually fuse to still more massive nuclei for successive doses of energy. (All fusions past helium add minor quantities of energy, however, compared to that available from the fusion of

hydrogen itself.)

Ordinary stars, like our Sun, don't reach very far into the stages of later fusion. They start swelling because of the internal heat, become monstrously large so that the surface cools down. They become red giants and eventually collapse into white dwarfs, blowing off a relatively insignificant portion of their outer layers (still chiefly hydrogen). They become "planetary nebulas," in this way. The exploded outer layers of hydrogen and helium expand into outer space, and the contracted portion remains a white dwarf, slowly cooling, for billions of years.

Really large stars, however, have enough gravitational pull to hold themselves together through many fusions. Eventually, such a giant star comes to resemble an onion, with an outermost layer still mostly hydrogen, but inside that a layer of helium; inside that one of carbon, nitrogen and oxygen; inside that a layer of silicon, magnesium and aluminum; and inside that, a layer of nickel, cobalt, and iron.

Iron is as far as any star, however massive, can go, for iron is the most stable of all the elements. It cannot fuse any further and produce energy. In fact, it would have to *absorb* energy to fuse.

The result is that a massive star suddenly has no further source of

sufficient energy to keep it expanded against the pull of its own mighty gravitational field. It collapses, but not just as an ordinary red giant does. The contraction of a giant star is far more catastrophic. In a very short period of time, its central regions rush together, and the outer regions explode with unimaginable fury, spraying heavy nuclei all through space. These are not nuclei merely up to iron, but include still heavier nuclei formed by the influx of the energy of the supernova explosion, all the way to uranium and beyond.

The interstellar dust clouds are thus polluted with these heavy nuclei, and when they collapse into stars it is as "second-generation stars" that contain much of the material that formed in the centers of first-generation stars that exploded as supernovas. The Sun is such a second-generation star, and every bit of matter on Earth and in our bodies — except for hydrogen and helium — was once at the center of a giant star.

What we don't know is the exact details of the explosion — just what nuclei are formed and how they decay. That kind of knowledge, if we could obtain it, might tell us a great deal about what goes on inside stars, about the course of stellar evolution, about the past and future of the Universe, and



even about our own Solar system, our own planet, and our own bodies.

How do we find out?

Well, that initial burst of inconceivable energy is stored, in part, in the form of massive, unstable nuclei, huge quantities of them, which proceed to decay and undergo radioactive change, giving up, little by little, the energy stored in their formation. Some of these nuclei give off highly energetic gamma rays as part of the breakdown process.

It is this radioactive breakdown that keeps the supernova glowing for months and years amid the ashen aftermath of the explosion, and if we could detect gamma rays that are unmistakably from a supernova remnant, and follow the decline in the rates of their production with time, we ought to be able to deduce with some precision which nuclei were formed and in what relative quantities.

In short, we might learn much more about the intimate mechanics of the supernova in a relatively short time of gamma-ray studies, than we could have learned with an infinity of watching by visible light.

It is for this reason that it is intended to have the Gamma-Ray Observatory zero in on all the supernova remnants we know of — some quite recent like the February 1987 supernova in the Large

Magellanic Cloud (the nearest to us in almost 400 years) and others that may be nearly a thousand years old, like the Crab Nebula, and some that are even millions of years old. By studying them at all ages, we will, in effect, get an extended "motion picture" of what happens in such explosions.

This is not to say we haven't already made a beginning, even without the Gamma Ray Observatory. A close study of the recent Magellanic supernova has detected gamma rays of the type to be expected from the decay of cobalt-60. Astronomers hope to go much farther than this with the Observatory.

What a supernova leaves behind after the explosion are extremely condensed objects: either neutron stars or black holes.

Neutron stars were discovered in 1969; at least, *some* were. A neutron star has enormously intense gravitational and magnetic fields. Speeding electrons and photons can just barely get away from a world in which only objects traveling at nearly the speed of light can make it to outer space. And even then, they can only escape in the region of the magnetic poles.

The magnetic poles are not always located at or near the rotational poles. Therefore, as the neu-

tron star rotates (at rates of anywhere from 4 seconds to a few thousandths of a second), the magnetic poles whirl around, spraying electrons and photons as they move.

Some of these neutron stars send out the sprays in such a way that they strike the Earth, and those neutron stars we detect chiefly by the pulses of microwave photons they emit. The pulses come very rapidly and with extreme regularity. Neutron stars that are detected by astronomers as objects producing pulses of photons are called "pulsars."

We can make deductions concerning pulsars from occasional sudden changes (or "glitches") in the pulsation periods and, barring such changes, from the slow but steady lengthening of the period. Some neutron stars send out visible-light photons so that, as they turn, they blink on and off several times a second, like a Christmas-tree light. The neutron star inside the Crab Nebula is such an "optical pulsar."

At least two pulsars have been caught occasionally emitting gamma ray photons. At least, the photons *seem* to be coming from there. If the Gamma Ray Observatory can pinpoint such emissions more exactly, and can measure the energies and time the pulses, we

may learn much more about pulsars, and neutron stars generally, than we now know. This would be another step in understanding the intimate details of supernova explosions.

Then there are the quasars, objects whose existence was first noted in 1963. They are the farthest class of objects known, the nearest being a billion light-years away, while the farthest is well over ten billion light-years away.

They are also the most luminous objects known, some blazing with a glow of a hundred galaxies. They are, in fact, galaxies, but so far away that, except under the most favorable conditions with the most advanced instruments, one sees just the luminous centers that are only a few light-weeks across.

It is difficult to understand how it is possible for an object so small to be so luminous and to deliver so much energy. The quasar, shining for indefinite periods, makes the supernova look like a damp firecracker, and we don't know exactly what's happening there. The best guess or, at any rate, the most popular one is that there is an enormous black hole at the center, one that is swallowing stars whole, and that the energy is the conversion into radiation of the vast kinetic energy of stars spiraling into bottomless holes. Still, that is

only a guess.

One of the quasars, the nearest, 3C273, is known to be a gamma-ray emitter. Apparently, half its total energy emission is in the form of gamma rays. A close analysis of those gamma rays may tell us more about what is going on in the core of the quasar, and a study of other quasars (hundreds are now known) may spot gamma rays from other such sources.

In fact, there may be black holes at the center, not only of quasars, but of more ordinary galaxies ("active galaxies") that seem to have catastrophic events going on in their cores. Gamma-ray studies of those cores may be illuminating, too.

There are some astronomers who think that black holes exist at the center of most, if not all galaxies, that black holes may possibly be the cores about which the galaxies formed in the first place. There seems to be considerable suspicion that the center of our own Milky Way Galaxy possesses a black hole. Certainly, there is a spot in the constellation of Sagittarius that is particularly active, and it undoubtedly represents our own Galactic center. That center is undoubtedly a gamma-ray source. And what about gamma rays that

have been detected here and there, all along the Milky Way?

In fact, we're still in a state of uncertainty as far as black holes are concerned in general. There is some reason to think that relatively small black holes make up part of certain double-star systems, largely through studies of x-rays given off by matter spiraling from the normal star of the pair into the presumed black hole. It would be a lot more convincing if we could also spot gamma rays, which might well be the last cry of the disappearing matter.

Perhaps the most puzzling aspect of gamma rays are "bursters," sudden bursts of gamma rays that occur at unpredictable times in unpredictable places and for only brief periods. While they're going, however, the bursters deliver more gamma-ray energy than all the steadier sources combined. We are not sure what these can possibly represent, but it is hard to believe that we would fail to discover something quite new about the Universe, if we studied bursters closely and came to understand them.

So — search throughout the panorama for a sign of royal Gamma.

Grania Davis, "Doctor Sunspot," (February 1990) returns with a colorful story about Miss Alice Davis of America, who inherits a most curious emerald from a great-Aunt in England and begins some wonder-filled adventures.

# THE BLESSED/DAMNED THORNSTON EMERALD

**By Grania Davis**



COULDN'T BELIEVE IT. NO one of sound mind would have believed it, either. I thought it

was a joke, or more likely an advertising scam. They lurk in my mailbox: *You have just won a free trip to London, a new sports car, a shopping spree, a designer mink coat . . . All you have to do is. . .* Whom do they fool with their phony postal frauds?

The envelope was very thin, with red-and-blue air-letter designs. Queen Elizabeth gazed coolly from the canceled postage stamp, and the return address was from a solicitor's office somewhere in Devon, England. The letterhead stationery of Bedford, Westfield, and Reynar, Solicitors Ltd. was thin and crisp, and the message was brief.

I was hereby notified that I'd been named in the will of my great-great-aunt, Mrs. Hilary Thornston, deceased. Would I please appear in their offices at nine in the morning, 24 May, with my passport as identification? The will would be read, and the late Mrs. Thornston's

bequests would be disbursed at that time.

So tacky, to use a fake will as a marketing scam. They were probably selling time-share condos in Hong Kong or the Falklands, or some other Crown blemish. I tossed the flimsy letter on the archaeological mound of unanswered mail, and went about my very busy business.

Another thin letter arrived the following week, politely inquiring whether I would attend the reading of the late Mrs. Thornston's will in person, or designate a representative. So that was their game: transatlantic ambulance chasing. Still, I did have distant relatives in England, and a slow scan of my memory banks (plus a call to my mother) pulled up dim memories of a family branch named Thornston. So I phoned the number on the solicitors' stationery.

A crisp female voice coldly informed me that *nothing* was being sold — what nonsense — this was a solicitors' office, not a shop. And indeed, I was a beneficiary of poor deceased Mrs. Thornston's will, which would be read on the morning of 24 May, should I care to attend or designate a representative.

"Did I inherit anything . . . valuable?" I asked hesitantly.

"That information is confidential until the will is read," said the crisp and frosty female voice, which probably belonged to a crisp and frosty female person.

England in May: wildflowers and stately gardens in bloom, London theater and museums and pubs, Indian curries and pints of bitter beer and scones with clotted cream. I consulted my own lawyer, my bank balance, my travel agent, and my boss. I dithered in my usual noncrisp mode, until I finally decided to go.

My name is Alice, and I was growing curiouiser and curiouiser — and ready to leap into this mysterious looking glass.

The village of Thornsbridge near Dartmoor looked ageless, with thatched gray-stone cottages in neat rows along narrow lanes. Flowers grew everywhere. Primroses and violets peeked from behind garden walls, cracks in paving stones, and playful window boxes. The offices of Solicitors Bedford, Westfield, and Reynar Ltd. were in the center of town, in a row of identical gray-stone shops and business establishments. The inner offices were scented with polished old wood, musty old upholstery, and bowls of dried flowers.

Miss Crisp was actually named Joan Crick. She wore tightly knotted dark blonde hair, a prim gray knit frock, and a strict manner. She ushered me inside to meet jovial Solicitor Bedford.

The Thornston family clustered on plump, plush chairs, festooned with lace doilies. Some Thornstons were younger and others were older, some male and others female, some handsome and others dowdy, some cheerful and others dour. But all the Thornstons were dressed in stern black, and all had inbred faces as identical as the gray-stone row houses. Same reddish blond hair, cleft chins, pinched mouths, elongated noses, and watery blue eyes — all staring at me.

I realized I was inappropriately dressed (as usual), in my jeans and blue cotton turtle-neck. "Hi," I said when Mr. Bedford introduced me to the assembled Thornstons. Several identical Thornston heads nodded, but nobody replied. Clearly, no one in that room ever said *Hi*.

The solicitor sat at an enormous desk of dark polished oak, and opened an envelope as if he were presenting the Oscar awards. It was the will of Mrs. Hilary Thornston, deceased at age ninety-two of heart failure. Wordy preambles were read in sonorous tones, for old Mrs. Thornston was clearly a posthumous-attention addict. Long lists of relatives and retainers were thanked for past favors, and awarded favorite knickknacks and furniture, trinkets and jewelry. Others were sternly chastised for rude behavior, and awarded — nothing. Had I come all this way to hear that I'd never phoned or visited, and to leave empty-handed? No such luck.

"To my great-great-niece, Miss Alice Davis of America, I pass on my most precious possession, for indeed, it is time to pass it on as I pass on. I refer, of course, to the blessed-damned Thornston emerald. May it bring Miss Alice better fortune than it brought me."

A little murmur passed through the room, and all the identical pairs of watery blue eyes turned to stare at me. I smiled and pretended that I knew what was happening. I even refrained from saying *Geel*!

The reading of the will was over, and milky tea and little jam tarts were served with a scowl by crisp Miss Crick. Some identical Thornston faces looked elated; others seemed disappointed or bland. All avoided looking at me, except with covert glances.

"Congratulations, Miss Davies," said Mr. Bedford. "The emerald is in the vault, and I shall fetch it shortly."

"The emerald . . . is it valuable?" I asked.

"Oh yes, quite. It's a large and perfect gemstone, and a historic curiosity."

"Blessed-damned Thornston emerald . . . that's a very strange name," I said.

"Oh yes, quite," replied the solicitor, quickly ambling off to congratulate or console the identical Thornstons, who sipped their tea from watery blue Wedgwood cups.

At last an elderly male Thornston, with a bald and bespotted head, eyed me directly with watery blue eyes and said, "So you've got it. May it turn out well for y'."

I turned to him with a big smile, pathetically eager to connect with someone in that overstuffed room. "I hope so, too," I babbled. "I must have it appraised for customs and taxes; I hope I can afford to keep it. I'm *amazed* Mrs. Thornston remembered me in her will."

"You'll be taking it to America, then?" asked the Thornston elder. "It'll be missing its mate."

"Its mate? Are there two identical Thornston emeralds? Maybe they were once joined, and cracked apart through some magic. Maybe they were in a pair of earrings worn by an enchanted princess. How romantic! Who has the other one? We must stay in touch."

"No one knows where t'other one rests," replied elder Thornston gravely. "Nor which one this may be."

"What's the difference between the two? Do they look alike . . . in the family tradition?"

"They look so alike that no living being can tell them apart — except, one is blessed and t'other is damned."

"So which do I have — the blessed or the damned?"

"Nobody can say."

"Well, the late Hilary Thornston lived to age ninety-two, and died with a nice little fortune intact. So this must be the blessed version."

"Poor Hilary had her own troubles," said elder Thornston with a dark sigh.

"Oh? What kind of troubles? Anything . . . unusual?"

"Can't really say," said elder Thornston, abruptly averting his gaze and moving away.

Great. I'd just inherited a bauble with a legend, a fun conversation piece. Every Thornston had to have its look-alike, even the family jewelry.

And if no look-alike existed, then one had to be invented, and built into a grim fairy tale. Well, my emerald was clearly blessed — it have given me a surprise holiday to England in flower-filled May.

Crisp Miss Crick reentered the room, carrying a tiny velvet pouch, which she handed to me with a haughty sneer. I opened the pouch and said it. I couldn't stop; the word just came out of my mouth: "*Geel*"

All the look-alike Thornston heads swiveled in my direction, but they weren't looking at me. They all gazed at *it* nestling in my hand: a multi-carat gem set in a plain gold ring, brilliantly faceted and shaped like a teardrop, emitting clear green light from a mysterious depth. It was clearly very valuable, and looked as magical as a legendary emerald should be.

The Thornston throng began to edge toward me, as if drawn by the dazzling green light. Then, one by one, they came to me and spoke a few terse words. I expected some anger and resentment — I was a stranger running off with a priceless family heirloom. But their words seemed oddly sincere: "Congratulations, love; I hope it does well by you. . . ." "Take care, missy, take care. . . ." "Remember to say your prayers, even out in America; you'll be needing divine guidance. . . ." "Beware that it doesn't run your life like it ran poor Hilary's. . . ." "Good luck, Miss Davies; I'll be glad to see the last of that thing. . . ."

Thanks a lot, identical Thornstons. I'll be glad to see the last of you, too.

**A**S I left the solicitors' office, I heard footsteps following mine. I turned and saw a male Thornston behind me. He was an attractive variation of the theme, with reddish blond hair in one of those spiky English haircuts, and bold blue eyes. I slowed down until he caught up with me.

"Colin Thornston," he introduced himself with a polite little nod. "Will you be going directly back to America now . . . with it?"

"I'll go to London and tour around a bit first."

"You've already seen the sights in Devon, then?" asked Colin.

"No, I haven't seen anything, really. What would you suggest?"

"Here you are, visiting family from abroad, and nobody has offered to take you about, or even asked you in for tea!" he snapped.

"Outsiders don't seem welcome here, family or not," I said.

"The family is a stiff and stingy lot, 'tis true. I'd be staying in London



now, and playing piano — except me home and ailing mum and living are here," he said wistfully.

"What kind of living?" I asked. Americans determine a stranger's caste by asking about their work, whereas the English classify each other by their accents and schools. Colin probably didn't rank highly in either system. Me, either.

"I run me dad's greengrocer shop. I took it over the year he died, and it provides for me and Mum. Except, sorting turnips gets tiresome, you know." His narrow face looked sullen.

"I know. My office work gets tiresome, too. Maybe I'll sell the emerald and retire."

"Sell the emerald!" He seemed truly shocked. "You can't be selling the emerald; it belongs in the family."

"Well, I didn't sign an agreement to keep it. I might have to sell it for customs and taxes. Anyway, it might be cursed."

"Cursed or blessed, doesn't matter. There's no need to tell the tax men about it. Just keep it well hidden. You can't let it out of the family. You mustn't!" His tone sounded threatening.

"O.K., calm down. You mentioned the sights in Devon?"

Colin's sullen mood abruptly shifted, and he smiled mischievously. "I'll do better than mention, love," he said. "I've got the rest of the day off, and the weather is fair. I'll borrow me cousin's motorcar, and fetch us a picnic lunch. We'll spend the afternoon trekking the wilds of Dartmoor."

I always enjoy a wild trek. Doesn't everyone?

Dartmoor may be wild by cozy English standards, but the landscape looks like peaceful parkland compared to the rugged American West. Colin parked the tiny red car in a secluded spot near a green velvet meadow, where billowy sheep and delicate Dartmoor ponies grazed.

"If you don't mind a bit of a climb to the top of that rise, I'll show you a secret spot," he said.

"I've been cooped up for days; I'd love a climb," I replied.

We set out across the meadow, abloom with violets and buttercups, and newborn lambs and foals wobbling beside their watchful mums. The terrain rose more steeply than it seemed from the road, and the velvety grass gave way to tangled thornbushes and mossy mounds of misshapen rocks. Wisps of windswept mist danced round our heads as we climbed.

And the bleak landscape looked wild indeed, even by American cowgirl standards.

We picked our way among thornbushes and mossy rock mounds, until we reached the top of the rise, crowned by a rugged spire of mist-shrouded boulders. "Tis the tor," said Colin solemnly, pointing to the twisted rock formation. "Many strange deeds happened here in olden times."

"What kind of strange deeds?"

"Have you ever seen a dead man carrying his own head in his arms? I've seen it here many times. They say 'tis the ghost of a slain Crusader, seeking his old home. But he cannot see with his head cut off, so he wanders the moors eternally."

"I saw that in an old movie," I said. "Basil Rathbone played the knight, and he fell in love with this horrid witch who restored his sight. Then he ran off screaming when he saw her hideous face."

Colin snorted sullenly. "I suppose you've seen springs pouring red blood in the cinema, then? You Yanks have seen everything."

"No, I've never seen anything that strange," I said tactfully, not wanting to create an international incident.

"Then look at this! 'Tis the Healing Spring of Maiden's Blood." Colin led me to the tor, and pointed triumphantly to a plume of water that gushed between two gnarled rocks. The water had a reddish hue, and the rocks were layered with clots of red rust. Clearly the maiden's bloody spring was loaded with iron ore.

"Awesome," I said.

Colin nodded curtly, and spread a plaid woolly blanket in a mossy clearing. He laid out a picnic lunch of pungent Stilton cheese and peppered smoked mackerel, pickled onions and crusty rolls, sweet-and-sour apples, and a jug of cider. I sat beside him on the cloth and admired the misted moors, and the feast spread at my damp feet.

After we ate, Colin said abruptly, "I've shown you my secret, Alice — now you show me yours."

What did he mean by that? Was Cousin Colin making a pass? "What secret?" I asked.

"You know, that blessed-damned thing."

"You mean the emerald ring? You want to see it? Sure." I fished out the little pouch that I'd tucked in my passport case.

The Thornston emerald lay in the palm of my hand, emitting that un-

uncanny clear light. It looked almost blue now, beneath the clouded sky . . . almost blue as Colin's bold eyes.

I glanced at him, and saw those blue eyes staring at the emerald with undisguised lust. No, it clearly wasn't me he wanted. I saw an inner movie of myself as a ghost, wandering the windswept moors, headless — and emeraldless. I shivered and slipped the gold band protectively onto the ring finger of my left hand.

The jagged tor began to swirl around me like a crazy kaleidoscope. I felt as though I were sinking into cold, dark water, and I struggled to catch my breath. Then I bobbed up like a free-floating cork in a very strange place. The whirling tor was no longer a rugged rock formation. It had become a great circle of monolithic boulders, covered with intricate designs drawn in chalk.

The mossy stones became a twisted labyrinth that snaked up the rise to the Maiden's Spring — which gushed bright red blood. Pilgrims wound their way through the intricate maze in a rhythmic, shuffling dance. They were dirty and misshapen, with long and tangled reddish hair and beards. They wore crude garments of stinking, ill-cured furs, and rough leather sandals and caps. Their faces were smeared with livid blue designs, and the shapeless women wore simple amber amulets around their necks. They droned a guttural chant through gap-toothed mouths.

When the pilgrims reached the healing spring, they knelt and smeared their diseased bodies with clotted blood. Then they shuffled within the monolithic stone ring, like gnarled bears lumbering round a Maypole. Huge black crows screamed and whirled beneath the ominous clouds, drawn by the scent of fresh blood.

I was in the midst of it all, sprawled on a flat slab of rock covered with complex chalk symbols. Chalk and slate — a communications technology old as time, and new as the first day of school. Fragrant flower garlands were twined round my head, and my neck was draped with amber amulets carved into crude little animals. My body was swaddled in a rough linen robe, and my feet were bare.

I love to be the center of attention — but not there. Especially with my wrists and ankles tightly tied with thick leather thongs. I wriggled and tried to free my hands, as the blood-smeared pilgrims circled the stone slab where I lay, shuffling and chanting in guttural growls.

Now a grim troop of hairy specimens ringed the slab, brandishing

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## A grim troop of hairy specimens ringed the slab, brandishing wicked antlers.

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wicked antlers tied to their heads with leather thongs. The stench of their filthy bodies and uncured furs made me retch. They eyed me hungrily with watery blue eyes.

Were they pagan priests? How could I tell them I'm no maiden? Did the ancient Britons practice human sacrifice and ritual cannibalism?

Did I really want to know?

I tried to squeeze my hands through the tightly bound thongs, but those ancient scouts had learned their knots. Then my eyes were drawn to a clear green light glinting from my finger. It was the Thornston emerald. What's a nice heirloom like you doing in a dreadful place like this? *Or is this a sample of your curse . . . ?*

With a little cry of pain, I twisted my hands to pull the ring from my finger. It fell to the mossy ground and rolled to the foot of a big, antlered dancer. He grunted with fear and stood quite still. They all grunted and stopped, and stared entranced at the clear green light. All the bent and blood-smeared pilgrims stopped shuffling through the maze, and gazed at the blessed-damned emerald.

Everyone stopped and grew still. Everything stopped and grew still. I grew still. . . .

Again the feeling of bobbing to the surface of deep, dark water. Then I was on the plaid blanket beneath the jagged tor, with my head in Colin's lap, muttering guttural growls. I sat up abruptly, and looked around in feverish alarm. Colin stared at me with concern — but the ring was gone. Had Cousin Sneak Thief put some weird drug in the cider?

"Where is it?" I demanded.

"Are you all right, Alice?" he asked, sounding fretful as an ethnic mother hen. "You suddenly passed out — maybe too much cider or excitement, or the thin Dartmoor air. You thrashed and muttered, then the ring fell from your finger and onto the cloth. I picked it up and put it in the tiny pouch. Here 'tis, safe and sound. What about you, love? Are you feeling better now? Can I get you something? Some water from the healing spring, perhaps. Then we'd best get back to the village. It'll be dark soon."

So this fit wasn't Colin's fault. Then whose fault was it? I'm not

usually the light-headed type. Was I cursed by the damned Thornston emerald?

Storm clouds gathered as we hurried downhill, back toward the car. Then thunder and lightning exploded around us. I was dressed for a mild spring day, and I shivered in my thin cottons.

"I've got rain gear in the car," said Colin. "I'll pop down and fetch it to keep you warm and dry." He scurried down the slope and disappeared in the wet mist, while I picked my way among mossy rock mounds and jagged thornbushes.

But was I going the right way? There was no clear path, and one rock mound and thornbush looked much like another in the cloud-shrouded dusk. I stumbled downhill, since the road surely lay in that direction.

I heard rustling and snorting from behind a dense thicket, and recalled that wild dogs and escaped convicts wander these moors. This is *Hound of the Baskervilles* territory. No place to be wandering alone in the stormy twilight, waiting for Colin to fetch an umbrella.

Where was he, and why was he taking so long? Had I taken the wrong turn and missed him? Or was he planning to leave me here in the dark, until I was too cold and scared to defend myself — and the emerald?

The rustling in the bushes turned out to be a fluffy family of grazing sheep, which calmed my rising panic a bit. I hurried downhill, until at least I saw the gray ribbon of road below me. Where was the little red car? Had I missed it, or had Colin driven off without me?

Then I saw him, leaping up the hillside lithe as a Dartmoor pony, and waving a yellow raincoat at me like a bullfighter waves his cape at an angry bull. I laughed despite my fears. Was Cousin Colin friend or foe? I had no way to know.

"Are you hungry, love?" Colin asked after he started the car. "There's a nice Indian place on the way back to the village. If you like curries, I thought we'd stop for a bit of supper."

I was more tired than hungry, but Colin sounded eager for a treat, and anything warm sounded tempting.

The Taj was a quiet place, with crisp linen and fading-empire decor. The tawny waiter hovered attentively as we ordered from the elaborate menu. Then he brought us a basket of crunchy popadams, and a platter of pickles and chutneys, along with tall pints of pale lager that revived me.

When the curries arrived, Colin hastily manipulated his knife and fork in that deft English culinary symphony, which is far more efficient than the prim American one-handed style. We savored the Gobi lamb and Vinadaloo chicken, the Madras eggplant and Kashmir pilaf, cooked with authentic Sanskrit flavors.

We talked quietly as we ate. Colin spoke wistfully about himself: he had never wanted to be a greengrocer; he had always wanted to study music. As the plates emptied, our conversation turned obsessively back to the Thornston emerald. "I wonder if the bloody thing has any inscription," he said.

"Let's take a look." I slipped the ring from its little velvet pouch and held the gold band near the flickering candlelight to examine it. The clear green facets glinted coldly.

Just then the waiter arrived with a large tray loaded with dishes, to clear our table. He stopped and stared at the emerald, with his dark eyes drawn mothlike to the brilliant light. He opened his mouth, and I thought he would praise the stone. Instead he screamed. Loudly. His face went pale, and he dropped the tray with a crash, screamed again, and scurried back to the kitchen.

I instinctively slipped the ring onto the middle finger of my left hand. I felt a sudden wave of dizziness, then I was surrounded by a wheel of cold green fire. I heard wailing chants, and drums echoed rhythmically in the distance.

The flames swirled around me, and creatures began to form in the icy emerald fire. I saw luminous flying serpents with the wings and heads of crows. They shifted into blue-skinned demons with a thousand horrible heads, a thousand fanged mouths gnawing raw flesh from human bones, and a thousand arms tipped with writhing claws. I saw great armies of cavorting white apes, battling elephants whose thousand trunks were swaying cobras with flaring hoods.

I screamed louder than the waiter. Then a huge and comforting hand reached through the flames and pulled the ring from my finger.

The fire and the creatures disappeared, and I was slumped back into the comfy booth of the Taj Indian restaurant. It was Colin's warm hand that pulled the ring off my finger. He held it cupped tenderly in his palm, and frowned as if debating with an internal demon. Then he glanced slyly at me, still leaning back with my eyes half-shut — and began to slide the ring onto his own finger.

"No, don't!" I shouted. "The damned thing *is* cursed. It's dangerous. And it's *mine* — give it back to me!"

"Sorry, love," said Colin, offering the ring with a patronizing smile. "I pulled it off your finger before you had another fit, and I just wanted to try it, to see what all the fuss is about."

"Yes, of course. Thanks," I said. My voice was shaky.

"Well, we'd best leave some money on the table," said Colin. "It's getting on, and I doubt that bleedin' bloke of a waiter has the nerve to show his face again."

I was still trembling as we left the restaurant. These trips through Alice's emerald looking glass were getting on my nerves. Maybe I should get rid of it. The blessed-damned thing was beautiful and priceless, but its strange power could overwhelm me. The elder Thornston had hinted that it had ruined old Hilary's life, and it could destroy mine, too. I should sell it, give it to charity — or just throw it away.

The storm had passed as we walked back to the car and crossed an old stone bridge over a rushing stream. I impulsively pulled the ring from its pouch and held it over the water. It flickered and glinted in the moonlight like a trapped green firefly. I could drop it in the dark river and be done with this weirdness forever. . . .

"Wait! What the hell are y' doing?" cried Colin. He clasped his hand over mine and roughly pulled it back toward the mossy bridge. I struggled to free my hand, to let the cursed ring fall, but Colin's grasp was tight as a vise. His face strained with effort, and his breath was uneven as he forced my arm to his chest. His body shoved against mine, crushing me against the rough rocks of the bridge wall.

His body felt warm . . . his body felt strong and good. I stopped struggling, rested my head on his chest, and began to sob. He let go of my hand and stroked my hair. "Hush there, me love," he murmured. "Don't let the bloody thing get to y'." His mouth brushed my forehead with a fleeting kiss. I raised my head, and his lips found mine with a sudden flash of heat. Then we both pulled back warily.

The emotional storm passed quickly. Our bodies separated, and we both mumbled apologies and adjusted our armor. I tucked the ring away, and we returned to the car.

"I'm awfully sorry," I said. "I didn't know what I was doing. The emerald is a creepy thing, like a nightmare that won't quit. I don't

know how to handle it . . . do you?"

"I know you need some rest," Colin said. "The bloody thing is getting you down. The last bus to London is long gone. Come back to our cottage and stay in the spare room tonight. Me mum will be glad to meet family from America. She'll fix a nice hot cuppa tea and a nice warm bed, and maybe she knows some old tales about the wretched ring."

COLIN'S THATCHED-STONE cottage was cozy and cluttered. Generations of knickknacks, and souvenirs from holidays to Costa Brava, were set neatly in curio cabinets. The plump oak furniture was draped with lace doilies. Colin's mum, Mrs. Madeline Thornston, wore the family facial features and a bright flowered frock. She looked soft and sweet as a pudding, which she vaguely resembled and probably enjoyed. She bustled around, fixing a bracing pot of strong black tea tempered with rich milk, as she filled me in on old family gossip.

"Now, Colin here," she said, nodding fondly at her son, "that lad would have been off to London studying music, if his poor dad hadn't keeled over and died. Now he's stuck here with his old mum and the greengrocer shop, and he can practice piano only on holidays. Why not play a nice little tune for your cousin from America, Son?"

"I'm too tired, Mum," said Colin, looking sullen again.

"Well, you've had a busy day, showing our visitor around. I hear this is your first time in the old family village, Alice. It must seem a mite quiet, compared to all those American gangsters mucking about. Still, we have our bit of fun, don't we, Colin?" He nodded curtly.

"Now, this was an odd day, with the reading of old Hilary's will and all. Poor Hilary, always seemed half in this world and half in t'other. They say a fine lad courted her in her time. But though she loved him, she always said she couldn't be a proper wife — nor lead a normal woman's life. M'dear, you looked dumbstruck when you saw the emerald, big as a hen's egg and bright as a torch. Have you tried it on yet? A jeweler can always adjust the gold band, you know. I had my wedding band expanded now and again." Madeline Thornston waved a pudgy hand and sighed comfortably.

"It fits fine," I said. "But it feels weird. There's some truth to those old stories about the ring — what do you know about it?"

Madeline poured herself a cup of tea and laced it generously with milk



and sugar. She leaned back in her easy chair and thoughtfully stirred the delicate bone-china cup with a small silver spoon. "There's always gossip going about, especially in an old village like this, but you can't believe half of what you hear. They say the emerald was one of a pair of rough-cut stones brought from China or Araby by tin traders, as long ago as King Arthur's time. But if it was old as that, the National Trust would have it in a museum by now, wouldn't you suppose?" She added another nip of sugar to her tea.

"So they say the twin emeralds fell into the hands of a witch coven for many centuries. The witches polished them up, set them in rings, and drew from each stone a blessing — or a curse. Back in the seventeenth century, many poor old witches lived as beggars in Devon's ports, which were bursting with your American tobacco."

"It's not *my* tobacco — I don't smoke," I interrupted.

"Glad to hear it; nasty habit," she said. "Well, these old widows led wretched lives, with their husbands lost at sea and all. Indeed, I can attest that a widow's lot isn't easy, though not as bad now as then, with National Health lifting some of the burden these days." She sighed and stirred her cup.

"So they started hunting the old widows as witches, accusing them of causing sickness — and letting little red devils suck their secret parts. And they hanged the poor wretches, who were too feeble-minded to defend themselves. Well, there was a Vicar Jeremiah Thornston, who owned a tobacco warehouse back then, nasty habit, and he took pity on those old crones. He gave them asylum, and a bit of food and shelter and menial jobs. I'm told there really was a witch, name of Helen, and she hid the emerald in her bosom. She gave it to old Vicar Thornston in thanks for saving her life. But she was too demented to say whether it was the blessed emerald — or the cursed. She could only mumble that it must go to a different family branch in each generation, to avoid causing terrible harm. That's why poor old Hilary willed it to you, dear — because everyone in the village of Thornsbridge is pretty well related by now."

"Yes, I've noticed," I said.

"Well, that's all I know, and that's all I've heard, if it's any help to you, love. And now it's time to tuck me old bones in bed."

Their spare room was a tiny alcove tucked beneath the sloping thatched roof. Bowls of dried flowers scented the chilly air, and the white-

washed walls were hung with family photos in dusty frames, so identical Thornston faces stared at me from every angle. A large photo of young Colin playing his piano hung over the narrow bed, which looked inviting with its soft down pillow and quilt. I changed into a flannel robe from my overnight bag, and settled in for a nice long sleep.

It had been a very curious day. I'd just inherited something priceless and strange — and I didn't know what to do with it. I curled up in the bed and slipped the ring from its pouch. It nestled in my hand like a living thing that beckoned me with intense green light. This was the first time I'd been alone with the emerald, and its power was a palpable presence.

Should I put it on? No, better not try it alone — too risky. But the clear green light summoned me, called to me from its weird wonderland. The blessed-damned emerald *wanted* me, and I couldn't resist. I slipped the ring onto the index finger of my left hand.

The room swirled around me in a dizzy white blur . . . then I stood on a grassy cliff overlooking a rocky sea cove. Scruffy sheep grazed among wild pink primroses and yellow Scotch brooms, and the stone watchtowers of a castle hovered in the misty distance. A fragile old woman with streaming white hair, bright blue eyes, and a rough wool robe sat alone on the cliff, gazing at the tossing jade sea below.

The old woman crooned softly to an object nestled in her hand — which glistened with clear green light. *She held the mate of the Thornston emerald.*

"Hail," she called to me in a thin voice. "What brings y' wayfaring to the realm of King Ort?"

"Hail," I replied (remembering in time not to say *hi*). "Your ring looks just like mine — I was wondering if it's blessed or cursed."

"Blessing and cursing be alike if y' know the secret usage — and if y' be not so afraid as the lady who came wayfaring through time before y'."

Poor timid Hilary, her confused reputation had followed her even here.

"What is the secret to using the ring?" I asked, hoping this ethereal crone had the owner's manual.

The old woman cackled, and extended her hands with the fingers splayed. One by one she slipped the ring onto various fingers, and the size of the hand seemed to adjust each time. As she moved the ring to different fingers, she crooned softly:

Left hand: Index finger — "*Seers.*"

Middle finger — "*Fears.*"

Ring finger — "*Tears.*"

Right hand: Index finger — "*Wealth.*"

Middle finger — "*Health.*"

Ring finger — "*Stealth.*"

"*Seers, fears, tears . . . Wealth, health, stealth.*"

"Right. Got it. Thank you, ma'am — and have a happy Halloween."

I slid the ring onto the middle finger of my right hand, which the wise old witch called *health*. I felt a startling rush of energy and well-being, as if I could sprint up mountains and dash across seas. Wow.

I tried the index finger of my right hand, which the wise old woman called *wealth*. The jagged cliff swirled away, and I found myself alone in the offices of Bedford, Westfield, and Reynar, Solicitors Ltd. On the big oak desk sat an old silver tea canister, very ornate and probably very valuable. I picked it up and opened the lid, with its Chinese dragon designs. Inside was a roll of creamy old papers, which looked like faded stocks. So shrewd Hilary played the market — with the help of emerald power — but what use were these to me?

I put the silver canister down and moved the luminous stone to my right ring finger — *stealth*. The office door opened, and crisp Miss Crick entered with a grim look on her face. I turned to greet her — but she couldn't see me. *Stealth*, indeed.

Miss Crick stalked to the desk and lifted the tea canister. She removed the old stocks and slid them into a large manila envelope. "Thanks so much, Hilary, old dear," she muttered coldly, as she quickly left the office and quietly shut the door behind her.

Curious, indeed.

Those were the three fingers on the right hand, which the wise witch had indicated. *Wealth, health, stealth*. They all promised blessings. The fingers on the left hand were *Seers, fears, tears*. I'd already tried them earlier that day, and didn't want to repeat their curses.

Now I knew the secret of the blessed-damned emerald. Finger magic! Do drivers gesture curses on the freeway from ancient archetypal memories of finger magic? And what was Miss Crick doing with those old stocks? I put the ring away and pondered these mysteries in darkness, until I slid into deep sleep.

\* \* \*

The next morning, Madeline had set a cheery breakfast table, with willowware egg cups, metal racks filled with cooling toast, and a watery blue delft bowl of homemade strawberry jam. An ornate silver tea canister also sat on the lace tablecloth.

"That oriental canister is lovely," I commented as I buttered my toast. "Where'd it come from?"

Colin snorted angrily.

"The canister was poor Hilary's legacy to us, and it's a charming and costly antique piece," said Madeline. "But I'm afraid it was a bit of a disappointment."

"How so?"

"Hilary's will left us her Chinese tea canister — and its contents — but when we looked inside, we found nothing."

"No rolled-up old stocks?"

"Heavens no, nothing like that, alas," said Madeline.

I told them about the ring vision I'd seen during the night.

"Are you sure you weren't dreaming, love?" asked Madeline.

Colin slammed his teacup on the table. "No, she wasn't dreaming, Mum. That ring has power — and I always knew that Crick icewoman was up to no good. Come on, Alice. Let's nab her before she forges Hilary's signature and manages to sell them off."

"But we have no real evidence . . . only a ring-inspired inner video," I said.

"No need to tell *her* it was a vision; just say what you saw!"

Crisp Miss Crick primly sorted papers at her desk in the front office of Bedford, Westfield, and Reynar Ltd. She looked up, startled as we marched through the doorway.

"It's rather early," she said coldly. "The solicitors haven't come in yet, and we aren't open for business. Perhaps you could return later."

"We don't need the solicitors. Our business is with you — and it won't take long. I believe you've misplaced a bit of my property," said Colin.

Miss Crick's pale face turned chalky gray. "I'm sure I don't know what you mean."

"There were stock certificates in the tea canister that Aunt Hilary left me and Mum. Alice saw you take them. Perhaps you were storing them safely for us. Please return them, and I shan't say another word."

"I beg your pardon; there must be some mistake," she said stiffly, running tense fingers across her tight knot of dark blonde hair.

"There's no mistake, Miss Crick," I said. "I saw you put the stocks in a manila envelope when I came by this office. Now, please give them back, or we'll have to report the matter to the police."

Miss Crick's crisp mask crumbled, and she began to cry. "That selfish witch treated me like her errand girl for years — '*Fetch this, Joan; file that, Joan; jot this down, Joan*' — and all she left me in her will was a cheap brooch. I deserved more than that, I really did!" Miss Crick sobbed into a wadded handkerchief.

"Yes, you probably did deserve more than that," I said. "My employers treat me shabbily, too — we *all* deserve more than we get. Return the stocks now, and we'll ask the solicitors to give you a bonus for finding them."

Miss Crick snuffled, slid open a hidden panel inside her desk drawer, and lifted out the manila envelope that held the roll of fading stocks. "How did you ever see me take them?" she sniffed. "I was certain I was alone."

"I'm just the quiet type," I shrugged.

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The stocks belonged to companies that had split and merged many times, so by now they were very valuable.

"You're a rich man now, Colin. You can retire from sorting turnips, and study your music," I said.

"Thanks to you, love," he replied.

"No, thanks to the blessed-damned emerald."

We were standing outside the grimy brick train station, waiting for my train to London. Colin clasped my hands in his long, warm fingers and looked down at me with those bold blue eyes.

"Maybe I'll come back sometime and hear you play in a concert," I said.

"Maybe I'll visit America sometime, and you can show me Disneyland and all the sights," he replied.

*Maybes* linked us and our hands for a moment longer, then it was time to board the train. The Thornston emerald glinted merrily from the middle finger of my right hand — the finger that the wise old witch called *health* — and I was full of vigor as I dashed to the train.

It was a bright day, and a bright journey through an emerald wonderland lay ahead.

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# INDEX TO VOLUME 80, JANUARY-JUNE 1991

Aldiss, Brian W.: <i>Better Morphosis</i> ..... June	54	Gardner, James Alan: <i>Reaper</i> ..... Feb.	99
Aldridge, Ray: <i>The Beastbreaker</i> (novelet) ..... Feb.	109	Gervais, Stephen: Cover for "The Blessed/Damned Thornston Emerald" ..... June	
Gate Of Faces (novelet) ..... Apr	125	Gilman, Carolyn Ives: <i>Wordworld</i> ..... June	33
Asimov, Isaac: Science: <i>The Illusion Of Motion</i> ..... Jan.	127	Griesemer, John: <i>The Breaking-Up Yard</i> ..... Feb.	56
<i>Down The Electron Stream</i> ..... Feb.	129	Haldeman, Joe: <i>Images</i> ..... May	52
<i>All Four Stanzas</i> ..... Mar.	133	Harris, S.: <i>Cartoons</i> ..... Feb.-May.	
<i>Skimming The Nearest</i> ..... Apr.	115	Hauser, Frank: <i>Cartoons</i> ..... June	
<i>This Pitiless Storm</i> ..... May	129	Hearth, Mark: <i>Cartoons</i> ..... Jan, Feb.	
<i>Royal Gamma</i> ..... June	130	Hightower, Lynn S.: <i>The Rose Elf</i> ..... Mar.	4
Barnard, Bryn: Cover for "Land's End" ..... March		Jonik, John: <i>Cartoon</i> ..... March	
Bauman, Jill: Cover for "When Jesus Came To The Moon For Christmas" ..... January		Kerr, Peg: <i>Athena Keramitis</i> ..... Feb.	70
Bird, R.P.: <i>Illness In A Word</i> ..... Apr.	70	Kessel, John: <i>Buffalo</i> ..... Jan.	51
Bisson, Terry: <i>Coon Suit</i> ..... May	97	Koja, Kathe: <i>The Neglected Garden</i> ..... Apr.	76
Bova, Ben: <i>Vacuum Cleaner</i> (novelet) ..... June	60	Lee, Michael: <i>Stranger In The Green Chair</i> ..... Apr.	102
Brennert, Alan: <i>Ma Qui</i> ..... Feb.	5	Martin, Henry: <i>Cartoons</i> ..... Jan.-June	
Budrys, Algis: <i>Books</i> ..... Jan.-June		Matz, Marc: <i>At Cost</i> ..... May	101
Caraker, Mary: <i>The Sandwalk</i> ..... May	67	Morressy, John: <i>Fair-Weather Fiend</i> ..... Jan.	69
Card, Orson Scott: <i>Books To Look For</i> ..... Feb.-June		<i>The Liberator</i> ..... Apr.	35
Competition: #52 Report ..... Mar.	159	Redd, David: <i>When Jesus Came To The Moon For Christmas</i> ..... Jan.	138
Conner, Mike: <i>Guide Dog</i> (novelet) ..... May	5	Robins, Madeleine E: <i>Papa's Gone A-Hunting</i> ..... Jan.	89
Cornell, Richard: <i>Push</i> (novelet) ..... Jan.	4	Rogers, Bruce Holland: <i>Big Far Now</i> (novelet) ..... Mar.	43
Counsel, Wendy: <i>Stigmata</i> ..... Apr.	49	Rosenblum, Mary: <i>Spirit-Dancing On The Evergreen Point Bridge</i> ..... May	139
Cross, Ronald Anthony: <i>Hanging Out With Bitsy</i> ..... May	107	Russo, Richard Paul: <i>The Open Boat</i> ..... May	119
Davidson, Avram: <i>The Day They All Came Back</i> ..... June	107	Shaw, Bob: <i>Lunch of Champions</i> ..... Apr.	58
Davis, Grania: <i>The Blessed/Damned Thornston Emerald</i> ..... June	140	Sherman, Delia: <i>Land's End</i> ..... Mar.	143
Denton, Bradley: <i>Skidmore</i> ..... May	82	Slesar, Henry: <i>Deuce</i> ..... June	45
Di Filippo, Paul: <i>Mairzy Doats</i> (novelet) ..... Feb.	34	Smith, Terry: Cover for "Guide Dog" ..... May	
Easton, Thomas A.: <i>Micro Macho</i> Feb.	89	Strickland, Brad: <i>Her Wild Wild Eyes</i> (novelet) ..... Apr.	6
Eide, Wennicke: <i>Blue Angel</i> (novelet) ..... June	110	Tepper, Sheri S.: <i>Raccoon Music</i> ..... Feb.	140
Ellison, Harlan: <i>Harlan Ellison's Watching</i> ..... Jan, Mar.		Vance, Steve: Cover for "Mairzy Doats" ..... February	
Engstrom, Elizabeth: <i>Rivering</i> Jan.	118	Walotsky, Ron: Cover for <i>Gate Of Faces</i> ..... April	
Farris, Joseph: <i>Cartoons</i> ..... Jan.-Mar., May, June		Wessell, Deborah: <i>She Could Look It Up</i> ..... Jan.	40
Foster, Alan Dean: <i>Agrarian Deform</i> (novelet) ..... Mar.	81	Whitlock, Dean: <i>On The Death Of Daniel</i> ..... Mar.	26
Fowler, Karen Joy: <i>The Dark</i> ..... June	6		
Frazier, Robert: <i>Mummers</i> ..... Apr.	84		
Friesner, Esther M.: <i>The Shoemaker And The Elves</i> (novelet) ..... Mar.	103		
Galef, David: <i>Tour De France</i> ..... Mar.	127		

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## Coming Attractions

The July issue is an issue filled with changes. In our cover story, Nebula award-winner **Nancy Springer** takes us to a modern yet magical woodland threatened by a developer in "Autumn Mist." Some of the changes are domestic problems with wide repercussions, as in new writer **Sally Cave's** story, "Fetch-Felix," and **Robert Reed's** "Pipes." **Larry Tritten** invites us to change our everyday existence in "Travels with Harry."

Some of July's changes will be internal. Our new editor **Kristine Kathryn Rusch** takes the helm, adding an editorial column to the pages of the magazine. Our regular columnists will return as always, providing insight into books, movies and science. Also along shortly will be stories by Kathe Koja, Gary Wright, and many others.

The rest of the year also promises to be exciting. We'll have stories by favorites Esther M. Friesner, Sheri S. Tepper, Ray Aldridge, and Paul Di Filippo, as well as appearances by award winners Geoffrey A. Landis, Bruce Sterling, and Mike Resnick.

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